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2	20	simpson.in. and advertis\$	US-PGPUB	2003/08/22 16:02
3	0	(advertise or advertisement or advertising) and dvd and queston	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:02
5	1	("5007641").PN.	USPAT	2003/08/22 16:07
4	381	(advertise or advertisement or advertising) and dvd and question	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:08
7	28	((advertise or advertisement or advertising) and dvd and question) and (game or play or prize or win)) and outcome	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:14
8	0	(game adj piece) with dvd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:15
9	0	(game adj piece) same dvd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:15
10	95	(game adj piece) with dis?	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:21
11	12	(game adj piece) with cd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:21
6	246	((advertise or advertisement or advertising) and dvd and question) and (game or play or prize or win)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:29
12	37	((advertise or advertisement or advertising) and dvd and question) and ((game or play or prize or win) with (dvd or cd))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:35
13	6	dvd with prize	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/08/22 16:35



US006406062B1

(12) **United States Patent**  
**Brooks et al.**

(10) **Patent No.:** **US 6,406,062 B1**  
(45) **Date of Patent:** **Jun. 18, 2002**

(54) **HIDDEN IMAGE GAME PIECE**

(75) **Inventors:** Joel M. Brooks, Conyers; Donnie Causey, Cumming; Matthew Montesi, Dunwoody, all of GA (US)

(73) **Assignee:** Global Commerce Group, LLC, Atlanta, GA (US)

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** 09/634,111

(22) **Filed:** Aug. 8, 2000

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 09/437,254, filed on Nov. 10, 1999, now Pat. No. 6,296,900, which is a continuation of application No. 09/081,795, filed on May 20, 1998, now Pat. No. 5,984,367.

(60) Provisional application No. 60/148,226, filed on Aug. 9, 1999.

(51) **Int. Cl.<sup>7</sup>** ..... B44F 1/10

(52) **U.S. Cl.** ..... 283/92; 283/94; 283/95; 283/114; 427/145; 427/261; 427/265; 427/282; 427/258; 427/259; 427/402; 428/213; 428/215; 428/216; 273/138.1; 273/138.2; 273/139; 273/269; 273/272

(58) **Field of Search** ..... 283/92, 94, 95, 283/114; 427/145, 261, 265, 282, 402, 258, 259; 428/213, 215, 216; 273/138.1, 138.2, 139, 269, 272

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*Primary Examiner*—A. L. Wellington

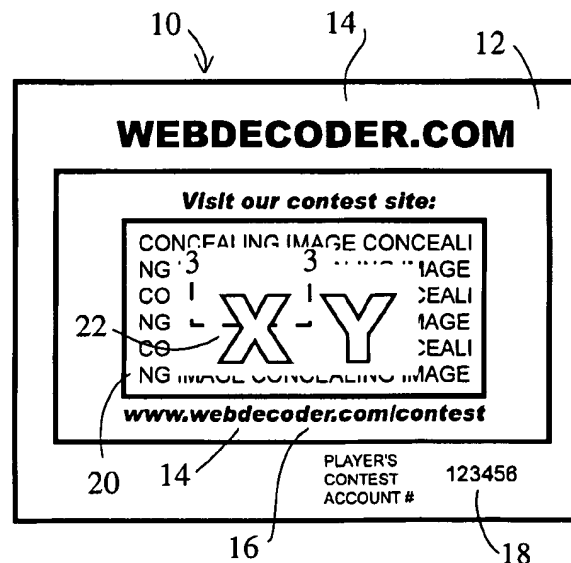
*Assistant Examiner*—Mark T. Henderson

(74) *Attorney, Agent, or Firm*—Sanford J. Asman

(57) **ABSTRACT**

A hidden image game piece and a method by which a hidden image game piece is produced and used. A first hidden image game piece is formed on a transparent or translucent substrate. A second hidden image game piece is formed electronically, and optionally printed or, alternatively, saved and distributed in electronic format. The hidden image game piece can be used to distributed either physically or electronically, and it may be used to derive demographic information from recipients, to drive them to web sites or retail outlets, and to provide a means for distributing advertising, either on the game pieces or at a game site, which may be a physical site, such as a retail outlet, or an electronic site, such as an Internet site. The methods of the present invention include the method of producing a game piece, the method of deriving demographic information from recipients of the game pieces, and the method of providing advertising to recipients of the game pieces.

**23 Claims, 14 Drawing Sheets**



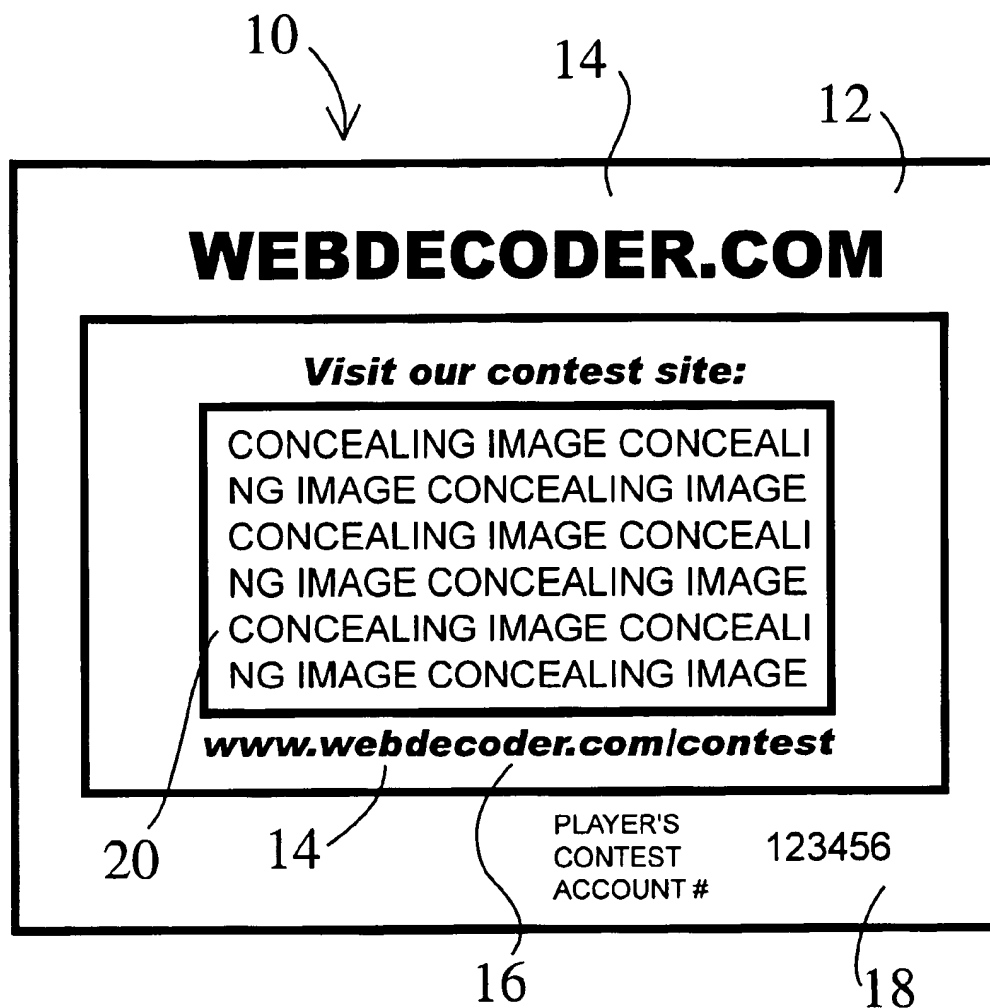


FIG. 1

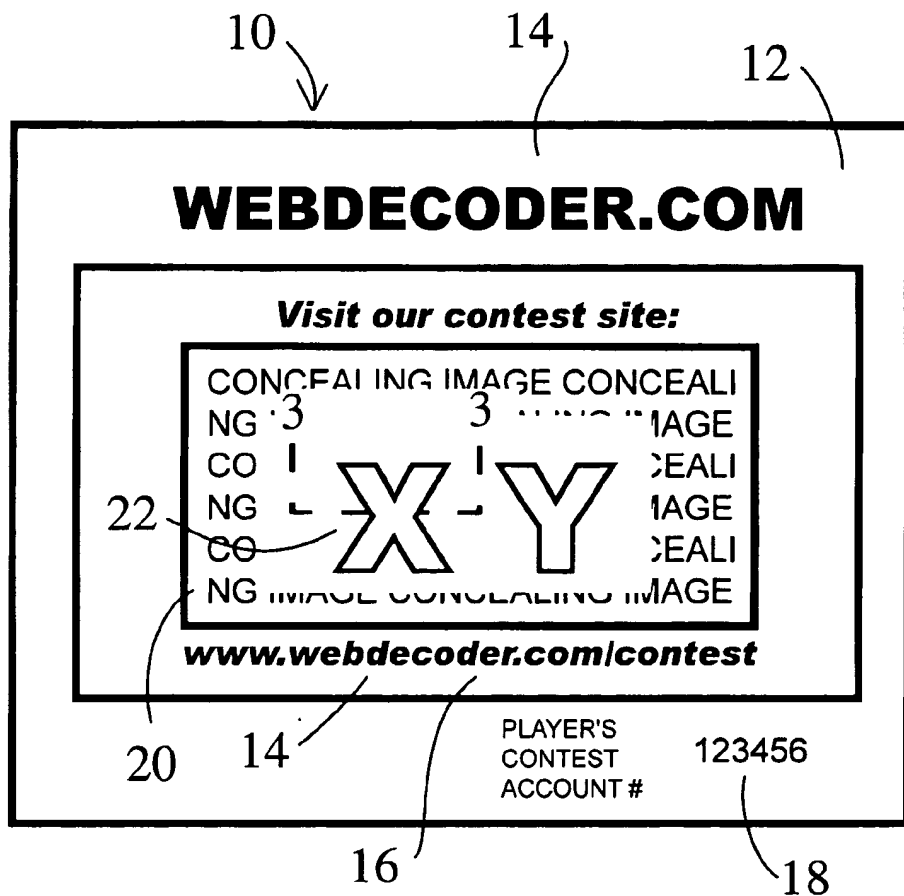
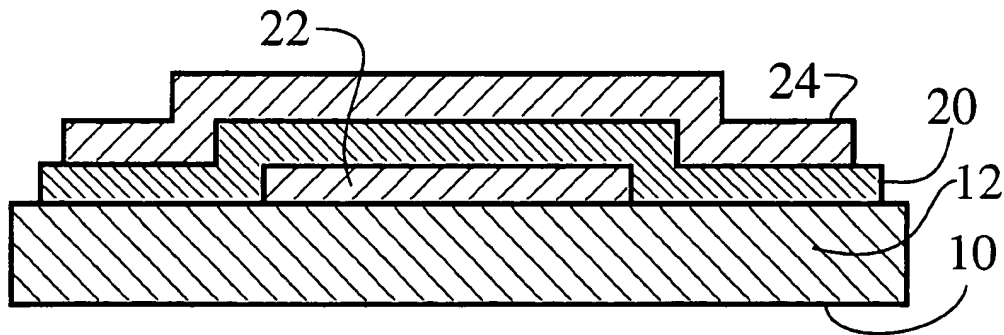


FIG. 2

FIG. 3



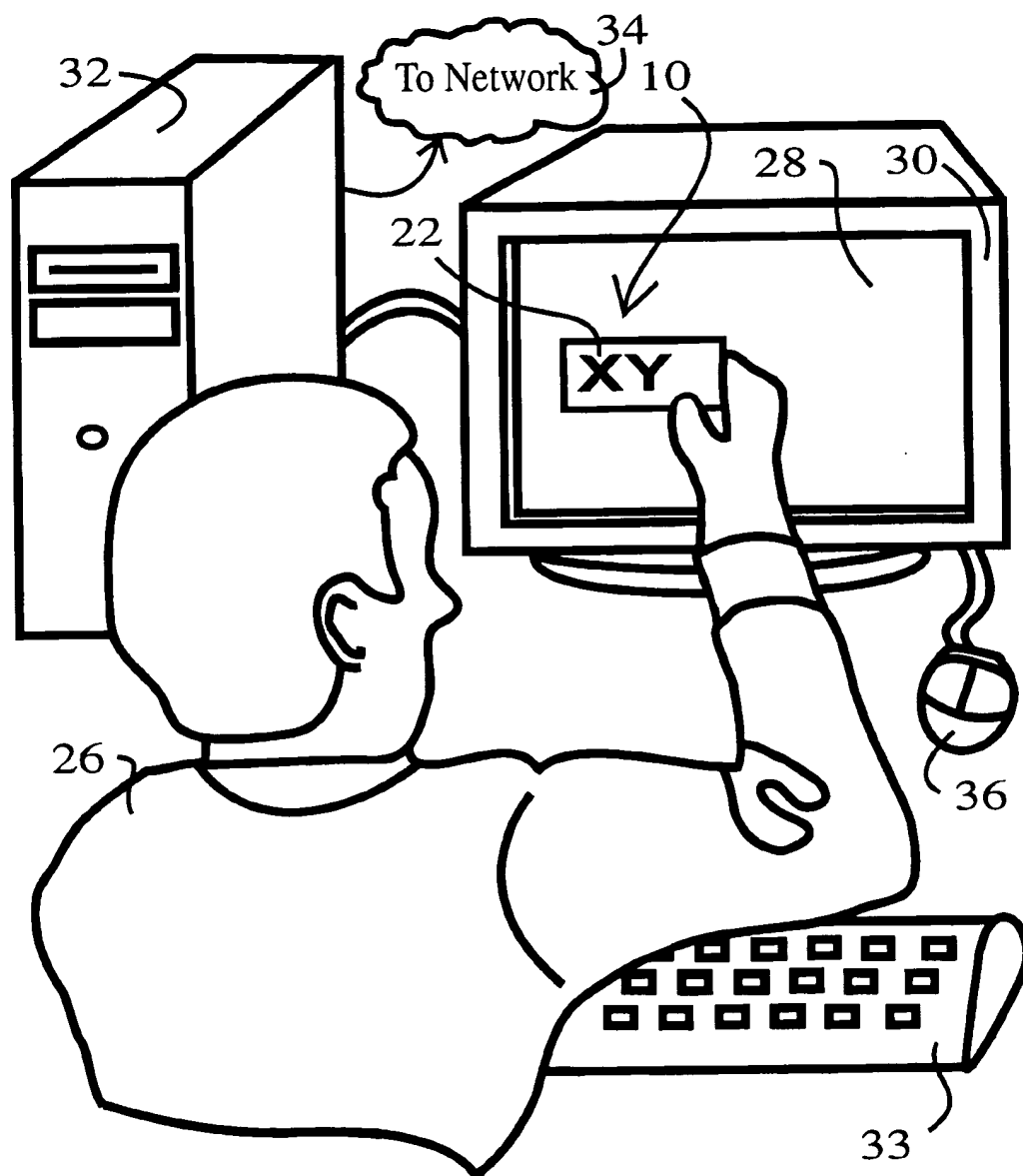
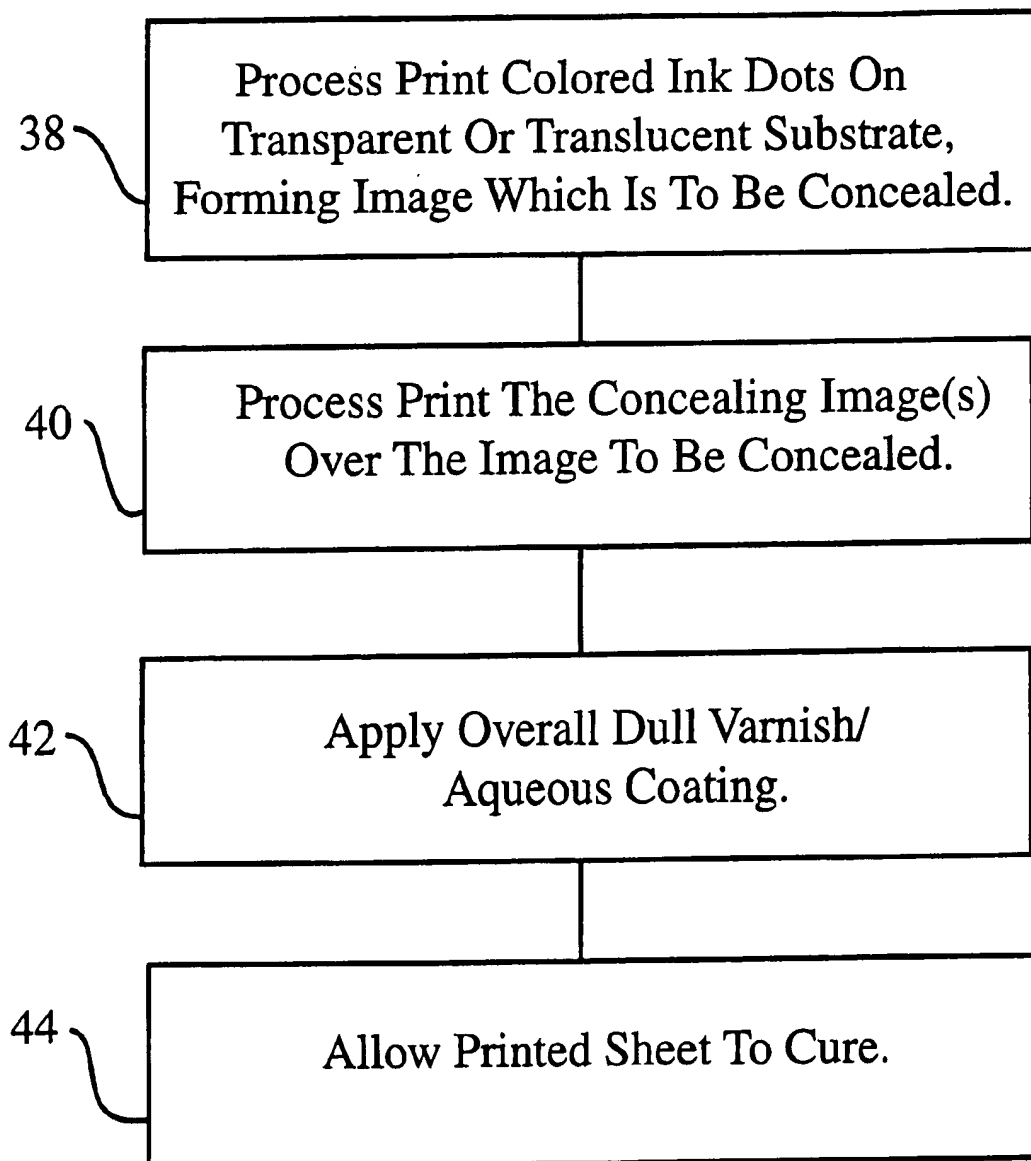


FIG. 4

FIG. 5

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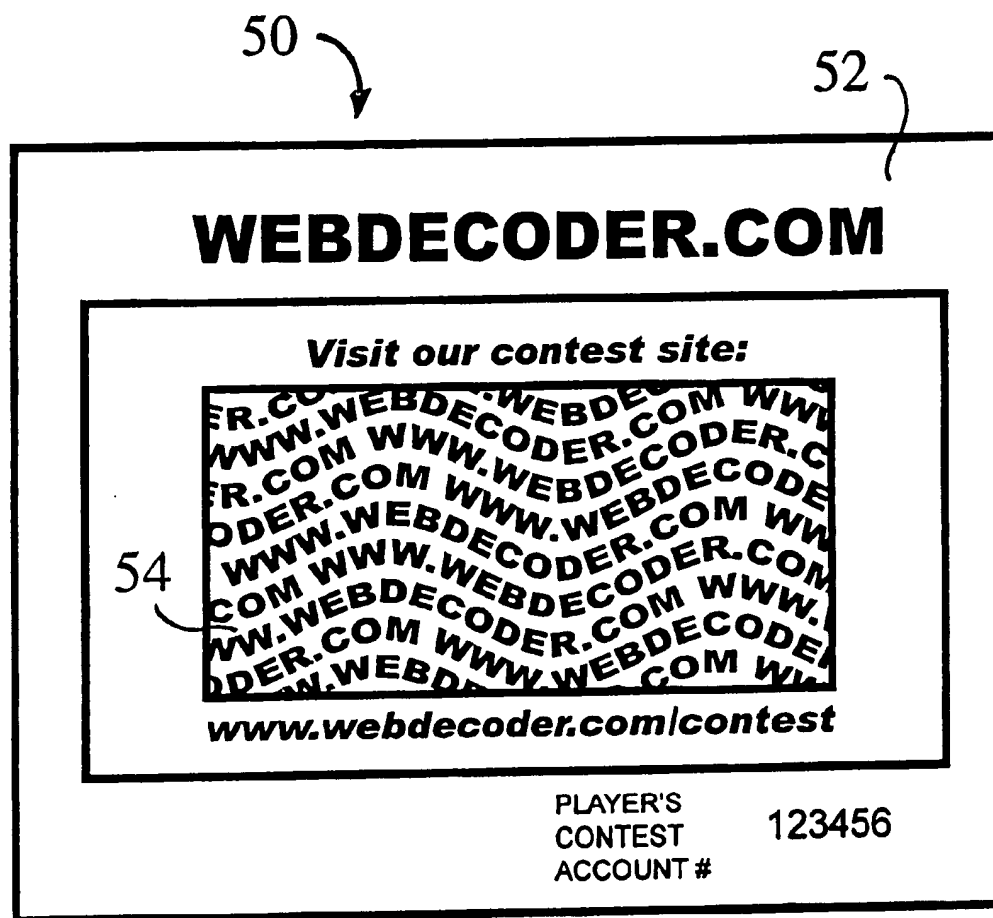


FIG. 6



FIG. 7



FIG. 8

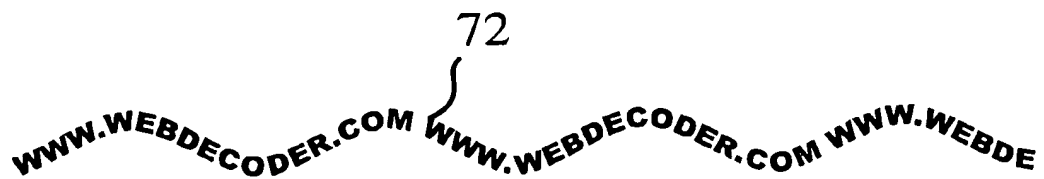


FIG. 9

FIG. 10

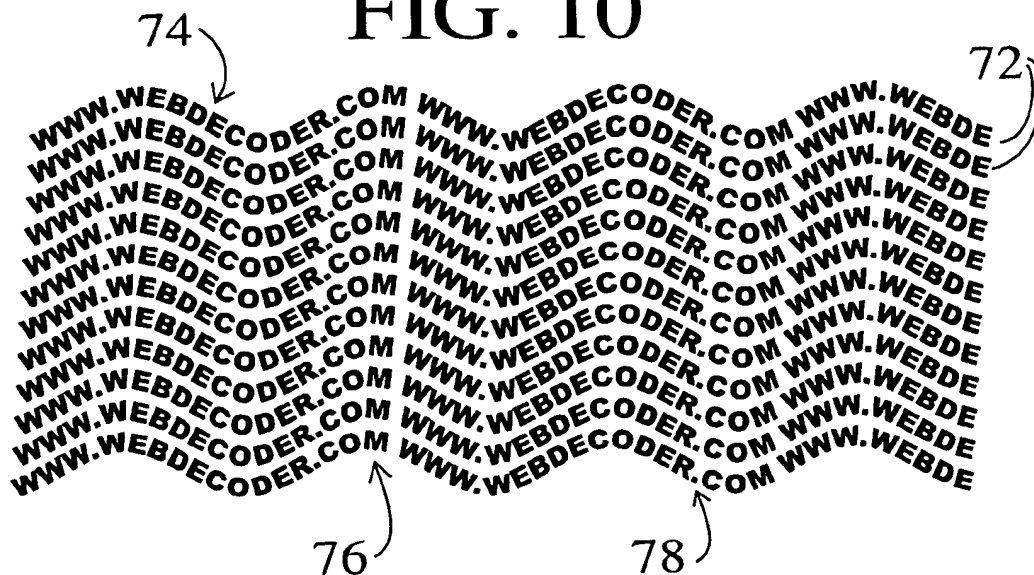


FIG. 11

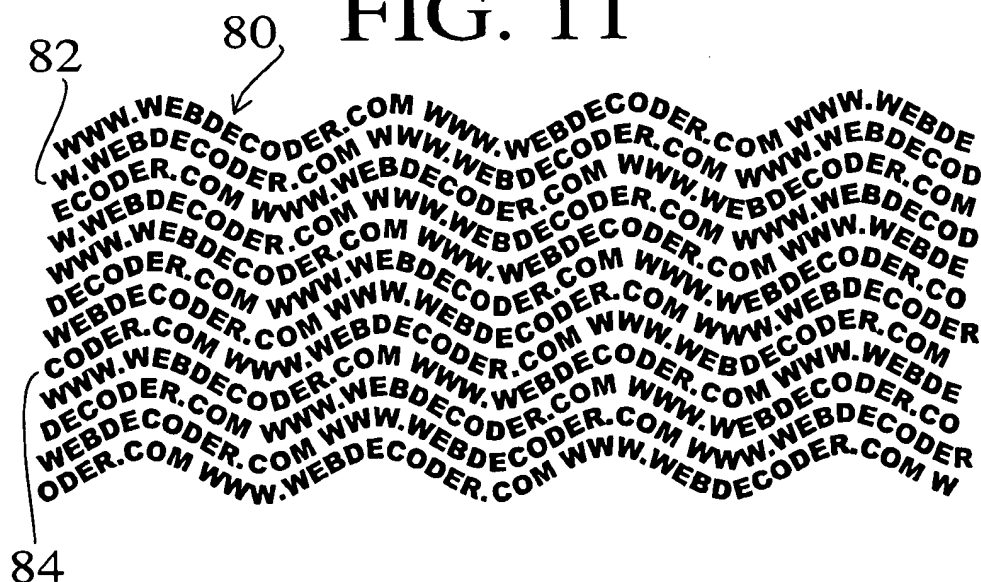


FIG. 12

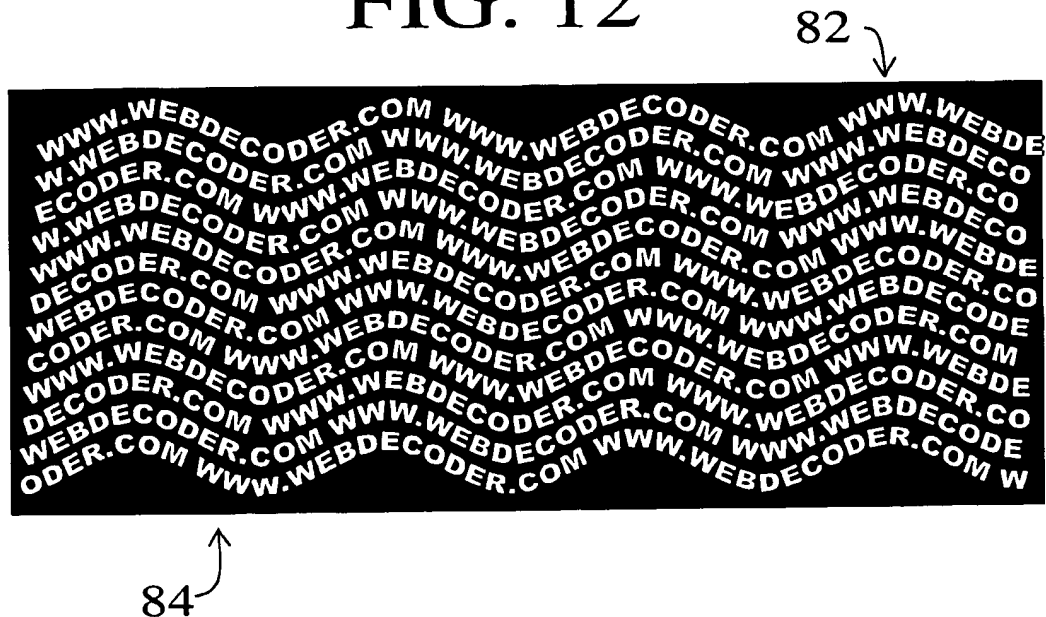


FIG. 13

FIG. 13 shows the text "The Netdecoder" in a stylized, outlined font. Reference numeral 92 points to the "T", 94 points to the "N", and 90 points to the "e".

# FIG. 14

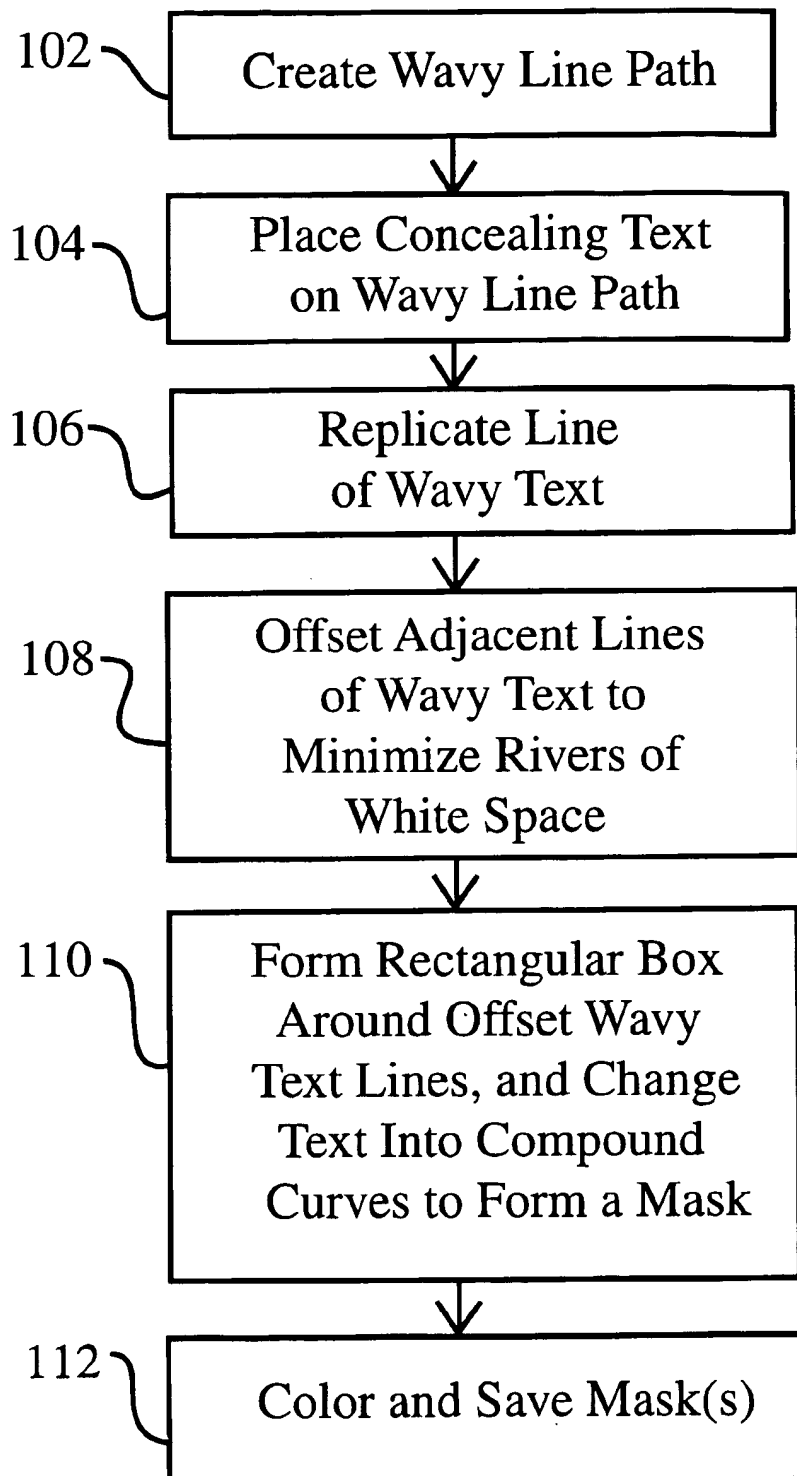


FIG. 15

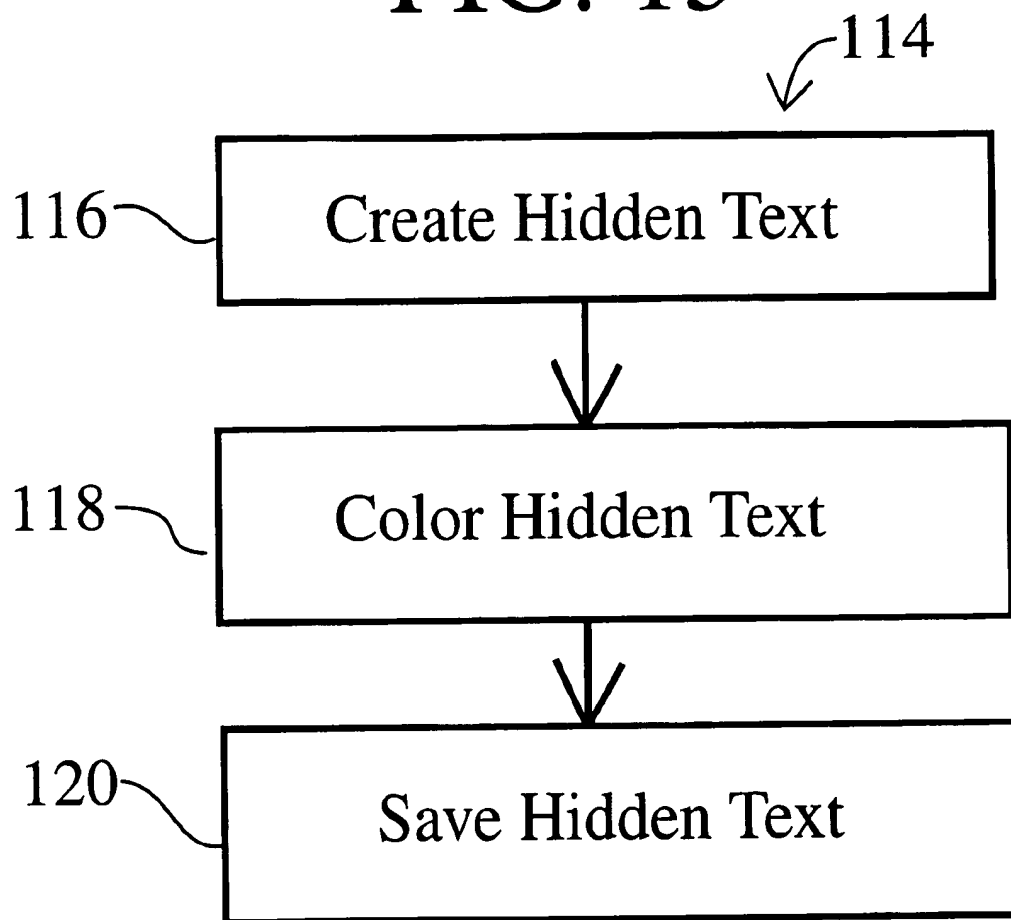
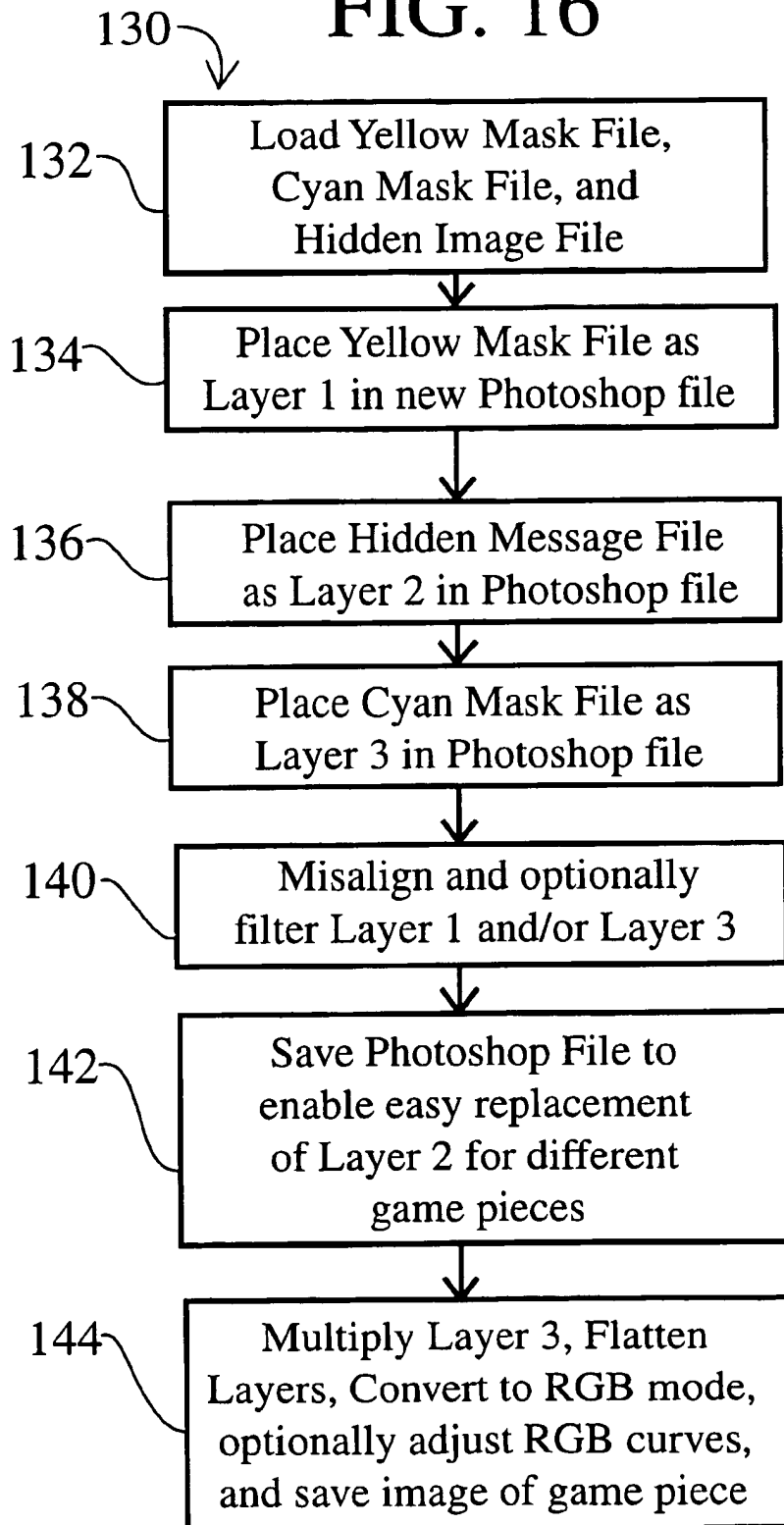


FIG. 16



# FIG. 17

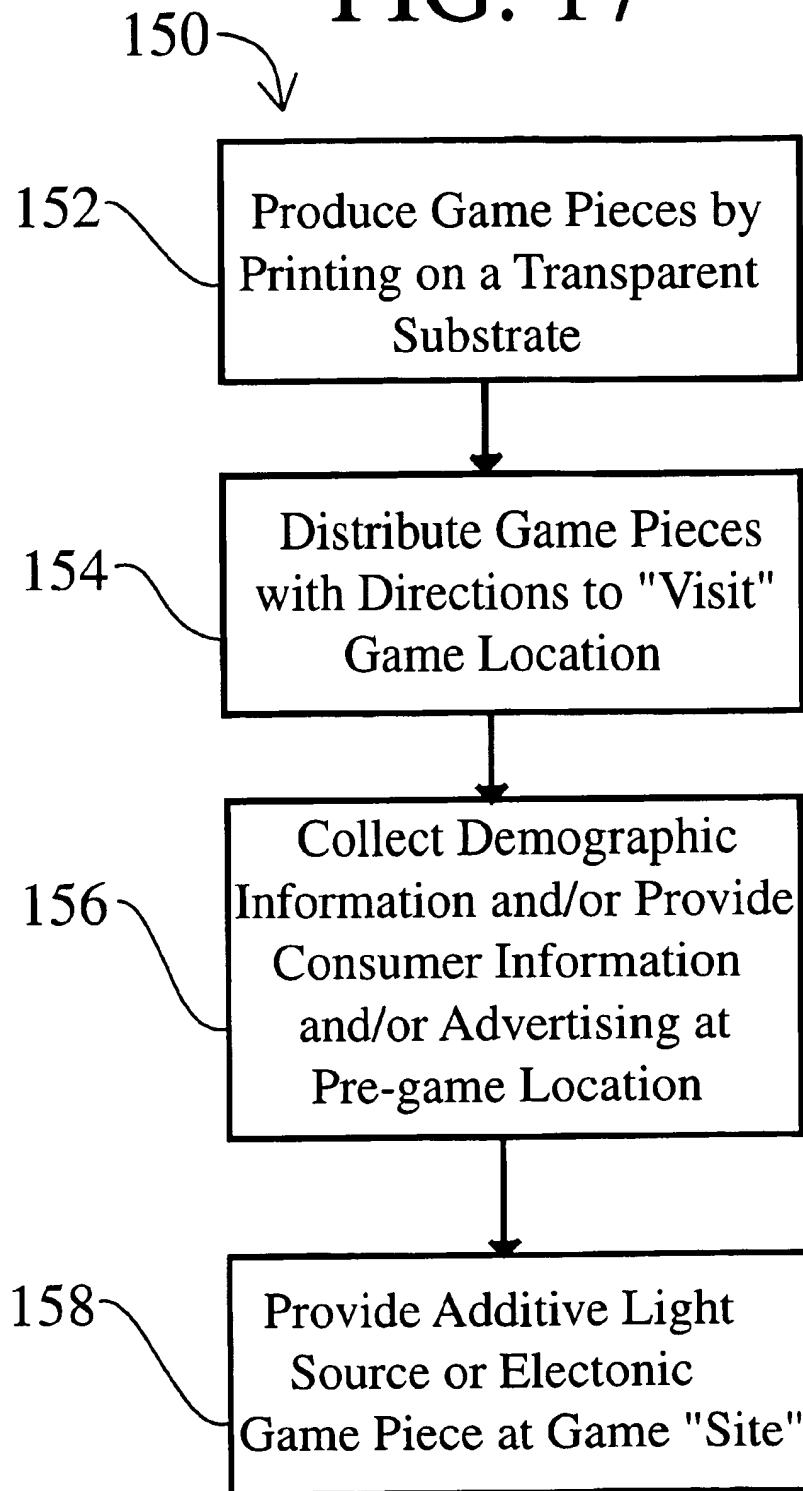


FIG. 18

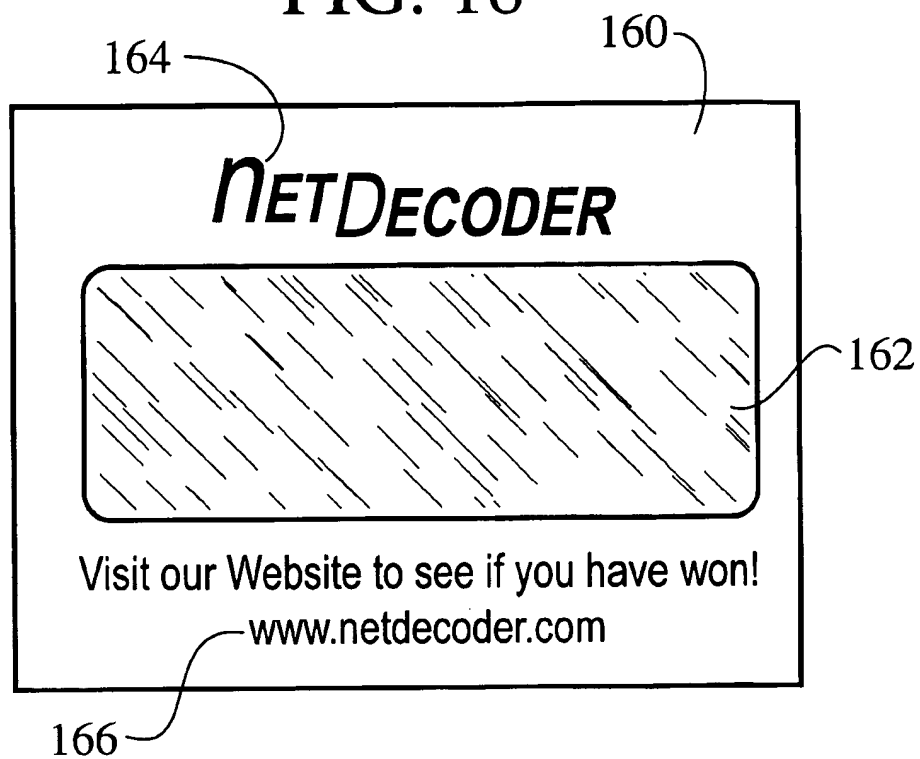
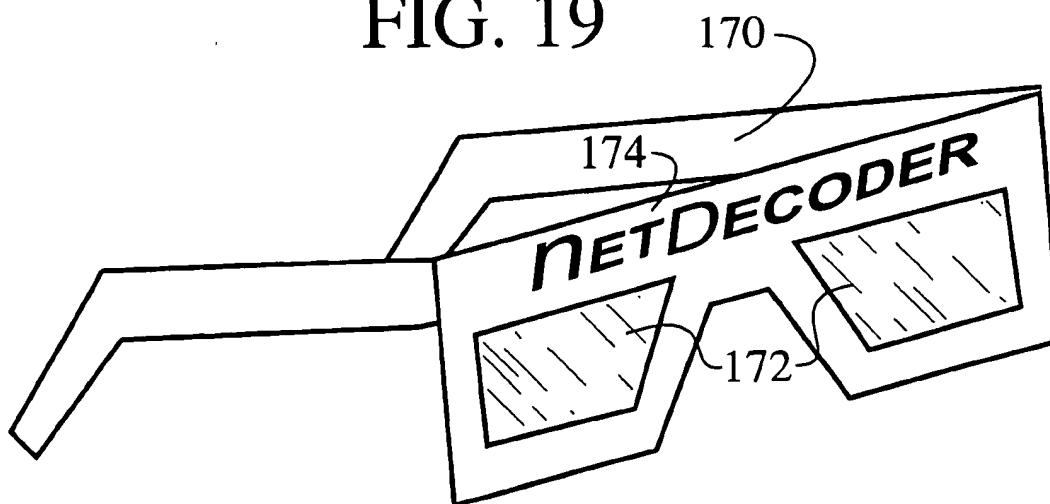
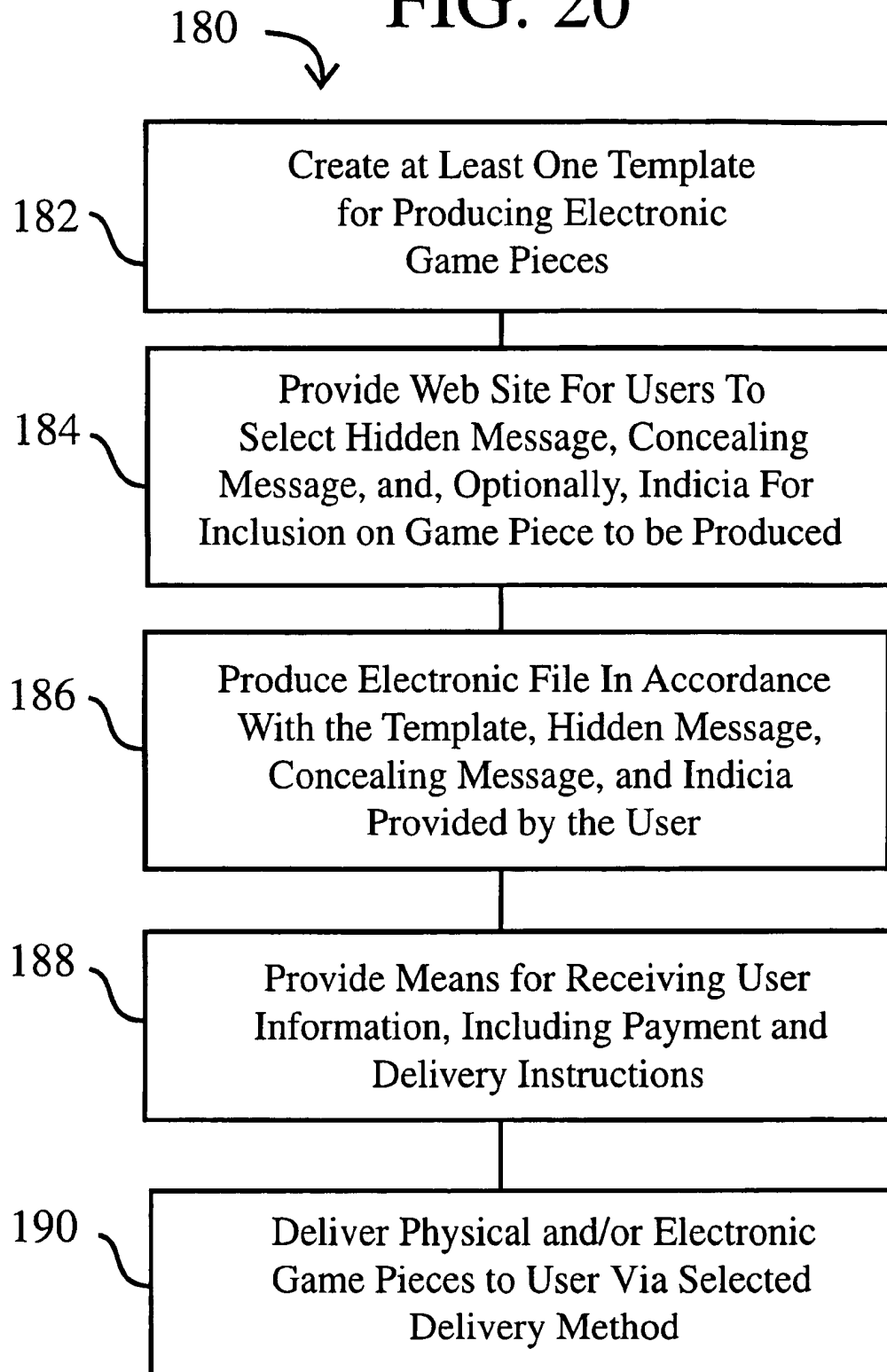


FIG. 19





**FIG. 20**

**HIDDEN IMAGE GAME PIECE****CROSS-REFERENCE TO RELATED APPLICATIONS**

The present application is a continuation-in-part of U.S. patent application Ser. No. 09/437,254, filed Nov. 10, 1999, now U.S. Pat. No. 6,296,900, issued Oct. 2, 2001, entitled HIDDEN IMAGE GAME PIECE, filed Nov. 10, 1999, which is a continuation of U.S. Pat. Application Ser. No. 09/081,795, filed May 20, 1998, now U.S. Pat. No. 5,984,367, issued Nov. 16, 1999, entitled HIDDEN IMAGE GAME PIECE. It is also a continuing prosecution application of provisional application Ser. No. 60/148,226, filed Aug. 9, 1999 entitled ORIGINAL NET DECODER. The present application further claims priority from PCT application Ser. No. PCT/US99/26464, filed Nov. 10, 1999.

**BACKGROUND OF THE INVENTION****1. Field of the Invention**

The present invention relates to game pieces. In particular, the present invention relates to game pieces which reveal concealed information when exposed to an additive light source.

**2. Description of the Related Art**

In numerous types of situations and environments it is desirable or necessary to provide a substrate which carries a hidden image. That hidden image might be a word, number, icon, logo, drawing, picture, depiction, marking, message, pattern, or some other indicia. For example, when a sheet with a hidden image is used as a game piece, its hidden image, once revealed, may be used to:

- (a) communicate the name of a particular prize in a sweepstakes;
- (b) communicate a particular number which has to be matched identically to a predetermined "winning" number in order to win a prize;
- (c) communicate a particular word which has to be matched identically to a predetermined "winning" word in order to win a prize; or
- (d) communicate a particular image, picture, logo, or icon in order to win a prize.

Often, there is a predetermined "seeding" structure inherent in a game-piece-delivered sweepstakes in which only a certain predetermined number of "winning" game pieces are printed and distributed for each corresponding prize level. However, because the game piece's potentially "winning" information is hidden, no contest participant has a chance to win unless he or she interacts with a game piece to reveal its concealed image.

There are numerous ways to create a substrate which carries a hidden image. All of these techniques could theoretically be used to create a game piece with a hidden image. For example, in some merchandising schemes a hidden image is present on a substrate, and it can be read only after a coating is removed, such as by scratching the coating or otherwise removing all, or portions of, the coating. Some types of hidden images on a substrate appear only after a chemical solution is applied to the substrate. Some types of hidden images which are carried by a substrate appear only after a reaction occurs in the image when the substrate is subjected to artificial or natural light. Some types of hidden images which are carried by a substrate are made to appear only after the substrate is subjected to a significant temperature change. Some types of hidden images which are carried by a substrate are made visible only when observed by

special types of light. Some types of hidden images which are carried upon a substrate are made visible for reading only when viewed through special optics. Several other methods for applying and reading hidden images have also been created.

Devices have been created in which a hidden image carried on a substrate only becomes visible when exposed to specific color(s) of light in the visible spectrum. Typically, such devices are created by using printing, or some other technique, to apply images to the substrate. For example, the image which is to be hidden may be applied to the substrate using one color. Then the marking, pattern, or image which has been designed to conceal the hidden image may be applied to the same portion of the substrate as the hidden image, using a different color. Generally, the concealing marking, pattern, or image is designed to cover, surround, or otherwise camouflage the concealed image in a way that makes the concealed image imperceptible in normal light. Often, a "mezzotint" pattern is used for the concealing marking, pattern, or image ("mezzotint" refers to a computer-generated pattern which has red and yellow elements; such a pattern is often used to disguise an image printed in light blue). An image which has been hidden in this manner may be revealed by exposing the substrate to light of a color similar to the concealing marking, pattern, or image.

All of the previously known methods for creating a light-activated hidden image game piece have proved to be unsuitable for creating a hidden image game piece which is capable of being activated by the low-intensity light emanated by a typical computer monitor screen. In the past, light-activated hidden image game pieces have typically: (1) employed a paper substrate; (2) not required that the density of the inks applied to the substrate be limited to a specific range; and (3) used a color filtering device to provide the specific color of light required to activate the game piece.

A number of game pieces have been created in which a previously hidden image will be revealed when the game piece is viewed through a color filtering device. As used herein, the term "color filtering device" refers to a device which tends to prevent the transmission of light rays of a substantially different color than the color filtering device. For example, if the primary color red is used for the color filtering device, it will absorb light of the other primary colors, namely blue and green, while passing red light. Accordingly, objects which are otherwise blue or green will appear black (in the absence of light transmission); red objects will remain red; white objects will also be seen as red, as the blue and green components of the white light will be absorbed by the color filtering device. Accordingly, on a white background, a blue image may be surrounded and camouflaged by red markings so as to appear substantially illegible when viewed with the naked eye. When viewed through a red filter, however, the image can be seen as a black image on a solid red background. U.S. Pat. No. 5,312,656 entitled TOY PICNIC SET HAVING A LATENT IMAGE PLACEMAT which issued on May 17, 1994 to J. Michaels shows the use of red filter (specifically, a transparent red plate in a toy picnic set) to reveal a hidden image in this way. A similar use of a red filter to reveal a hidden image is described in U.S. Pat. No. 5,401,032 entitled MYSTERY PUZZLE GAME which issued on Mar. 28, 1995 to T. L. Barnhart, et al.

An approach other than the color-filtering technique described above is required when designing a hidden-image game piece capable of being activated by a device such as a computer monitor. While a color filter uses ambient natural

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or artificial light, and screens out those colors of light which are undesired, it is also possible to "add" light of a specific color to a game piece, without filtering the ambient light. In the case of a computer monitor, or similar device, the "additive" light needed for activation of the game piece may be obtained by placing the game piece on a specifically-colored area of the screen of an operating monitor, or a device which otherwise gives off colored light of the correct frequency. This action floods the game piece with the specific type of colored light required for activation, thereby revealing the hidden image.

By way of example, it is possible to make a paper game piece which is designed to be activated by red light when placed on a television screen. In such a game piece, a printed red and yellow mezzotint pattern could be used to conceal a hidden image printed in light blue. When such a game piece is flooded with the additive red light supplied by a red square projected on the television screen from the source of transmission, the game piece's hidden message will be seen as a black image on a red background.

However, a paper game piece designed to be activated by a relatively high-intensity light source, such as a television screen, cannot be used with a relatively low-intensity light source, such as a computer monitor. The intensity of the additive light provided by a computer monitor is generally only 80–120 candlepower (the intensity of light a source is measured in standard units known as "candlepower", wherein one candlepower is equal to the light emitted by one standardized candle). A computer monitor's low-intensity light cannot activate a hidden-image paper game piece, because it cannot overcome the paper's opacity to reveal the hidden image. Therefore, a traditional paper substrate cannot be used to create an additive-light game piece designed to be activated by a computer monitor.

In the past, the density of the ink application used in printing an additive-light activated hidden image game piece has been of relatively minor importance. However, when producing an additive-light activated hidden image game piece which is designed for use with computer monitors, or other devices which emanate relatively low levels of additive light, the density of the ink application must be controlled within a narrow range. If the density is too high, it will serve to block the additive light needed to reveal the hidden image. If the density is too low, the hidden image and/or the concealing image will be illegible.

In the printing industry, "density" is a term of art. It refers to the thickness of a coating (typically, ink) which is applied to a substrate. One unit of density equals  $\frac{1}{100,000}$  of an inch (0.00001 inch) of coating thickness. Therefore, a density of 100 equals  $\frac{1}{1000}$  of an inch (0.001 inch) of coating thickness, which is equal to one mil. Printers typically use a tool known as a "densitometer" to measure coating thickness.

The phrase "dull coating" is also a term of art in the printing industry. It is often used interchangeably with the terms "dull varnish" or "frost coating". A dull coating is a coating which is traditionally used by printers to enhance the appearance and durability of printed matter. Such a coating may be oil-based or water-based. A water-based dull coating is commonly referred to as an "aqueous" coating.

In the past, there has not been any method of providing an electronic hidden image game piece of the type described, and such game pieces were always produced on a substrate, such as a paper or plastic substrate. Accordingly, it would be desirable to have a method for producing "electronic game pieces" which could be displayed on computer monitors, or served from Internet web sites.

#### SUMMARY OF THE INVENTION

The present invention is a game piece with a hidden image, and a method for producing such a game piece. To

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create the first embodiment of the game piece of the present invention, a first pattern of colored ink is deposited on a transparent or highly translucent substrate at a density which is preferably in the range of about 110–180 density in order to form an image. Then, a second pattern of colored ink, having a different color than the first pattern's ink, is deposited upon the substrate at a density which is preferably in the range of from about 90–170 density. The second pattern should cover at least a portion of the first pattern. When the game piece is flooded with additive light of the same color as the second pattern's ink, the previously concealed image, composed of the first pattern's ink, becomes perceptible. As a transparent, or highly translucent, substrate is preferably used for the game piece, and because the density of the ink application is controlled within certain ranges, the game piece thus created may be used with a low intensity additive light source, such as a computer monitor, or other, similar source of low-intensity additive light.

Among the advantages of the present invention are that it provides an additive-light activated hidden image game piece which will reveal its hidden image when exposed to relatively low levels of additive light, such as those typically emanated by a computer monitor. It provides a method for producing an additive-light activated hidden image game piece which will reveal its hidden image when exposed to relatively low levels of additive light, such as those typically emanated by a computer monitor. Also, it provides method for producing an additive-light activated hidden image game piece which creates high quality products.

In accordance with the foregoing embodiment of the present invention, each individual game piece may contain an a hidden image. The number of such images is, of course, determined during the printing step. Thus, if it is desired to have n different game pieces for distribution, it is necessary to print n different patterns on the game pieces. As will be obvious, the recipient of a particular game piece can decode that game piece by placing it over an additive light source of the correct frequency, but the image will always remain the same. For some applications it may be desirable to provide the ability to generate different hidden images without the need to distribute additional game pieces, something which cannot be done with the first embodiment of the invention.

In accordance with another embodiment of the present invention, a computer monitor, or similar device, can be used to generate a pattern which includes a hidden image. A game piece can be distributed which is a filter, allowing a single color of light to pass therethrough. Thus, if the image displayed on the computer monitor includes a hidden image having a color corresponding to the color of the filter (i.e., the color of the game piece), surrounded (or overlaid) by an obscuring pattern in other colors, the hidden image will pass through the game piece, while other areas will appear black.

In accordance with another embodiment of the invention, an electronic game piece is provided which can be displayed on computer monitors, or served from Internet web sites. This electronic game piece can be the basis of several businesses including traditional advertising to drive users to a physical or electronic location, or even the business of creating electronic game pieces to be served from a web site or physically or electronically produced for distribution.

#### BRIEF DESCRIPTION OF THE DRAWING

In the Drawing:

FIG. 1 is a plan view of a substrate on which a hidden image has been applied in accordance with the first embodiment of the invention, with the hidden image shown concealed;

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FIG. 2 is a plan view of the substrate of FIG. 1, on which a hidden image has been applied in accordance with the first embodiment of the invention, with the hidden image shown revealed;

FIG. 3 is a section view of the substrate shown in FIG. 2, taken along the lines 3—3 of FIG. 2 showing the manner of manufacturing a game piece in accordance with a first embodiment of the invention;

FIG. 4 is a plan view showing a hidden image game piece in accordance with the first embodiment of the invention being held up to a computer monitor to demonstrate the manner of revealing a hidden image;

FIG. 5 is a block diagram illustrating the method of manufacturing the first embodiment of the present invention;

FIG. 6 is a plan view of a second embodiment of the present invention, which may be produced either as a physical game piece or as an electronic game piece;

FIGS. 7–13 are plan views illustrating the method of the present invention which is used to produce the game piece of FIG. 6;

FIG. 14–16 are flowcharts illustrating the steps used in the production of the game piece of FIG. 6;

FIG. 17 is a flowchart illustrating an inventive method of using the game piece of FIG. 6;

FIG. 18 is a plan view of a game piece which contains a filter used to view an electronically produced game piece made in accordance with the second embodiment of the present invention;

FIG. 19 is a perspective view of a pair of eyeglasses containing filter lenses which may be used to view an electronically produced game piece made in accordance with the second embodiment of the present invention; and

FIG. 20 is a flowchart illustrating another inventive business made possible by the game piece of the present invention.

#### DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

Referring to FIG. 1, a first embodiment of the hidden image game piece 10, of the present invention, is shown. In the first embodiment, the game piece 10 is comprised of a substrate 12, which may be transparent or translucent. In the preferred embodiment, a transparent substrate is employed, although the game piece 10 can be made using a translucent substrate, with the opacity of the substrate 12 dependent upon the intensity of the light available from the light source used. Thus, if a very bright light source is used, the substrate 12 can be less transparent, while if a low level light source is used, the substrate should be more transparent. It has been found that good results may be obtained by using a transparent polyester substrate having a thickness of about 4 mil, or greater (a "mil" is 1/1000 of an inch). While a typical game piece 10 is formed on a rectangular, transparent piece of polyester, a suitable substrate can comprise a transparent or highly translucent compact disc (CD) which could be turned into a game piece in accordance with the present invention by using the techniques described herein.

If a transparent or translucent CD is used as a substrate, it should be noted that only discs which are not highly aluminized (e.g., discs which have not been aluminized or which have been only partially aluminized) are the most suitable for use as a game piece in accordance with the first embodiment of the present invention.

As shown in FIG. 1, the game piece 10 may include visible indicia 14 such as a company name or logo, the

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Uniform Resource Locator ("URL" or "web site address") 16 of an Internet site, and/or a serial number 18, which can be applied for security reasons. The game piece 10 further includes a concealing image 20 which is used to obfuscate a concealed image, as will be described hereinafter.

Referring to FIG. 2, a concealed image 22 is applied to the surface of the substrate 12 by printing the concealed image 22 using a coating material, such as ink. In the preferred embodiment of the invention, the concealed image 22 is applied in high density fluorescent yellow ink at 120–140 density. A concealing image 20 is applied to the substrate 12 over the concealed image 22 by printing the concealing image 20 in a coating material, such as ink, after the concealed image 22 has been printed. In the preferred embodiment shown in FIGS. 1 and 2, the concealing image 20 is applied in high density fluorescent process cyan ink at 140–150 density. These elements have been combined to form an exemplary game piece 10.

With continued reference to FIG. 2, the lines 3—3 are used to represent the cross-section, through a portion of the substrate 12, the concealed image 22, and the concealing image 20, as shown in FIG. 3. With reference to FIG. 3 a cross-sectional view of the printed game piece 10 taken along the lines 3—3 of FIG. 2 is shown. Thus, FIG. 3 shows the transparent or translucent substrate 12 with the concealed image 22 printed thereon, and the concealing image 20 printed over the concealed image 22. FIG. 3 also shows the "dull" coating 24, applied over the tops of the printed images 20, 22, and preferably over the entire substrate 12. Although it the game piece 10 can be manufactured without applying the dull coating 24, far better results are generally obtained if the dull coating 24 is used. As recognized by those skilled in the printing arts, the dull coating 24 enhances the game piece 10 by preventing the underlying printed images 20, 22 from smudging. The dull coating 24 also gives the printed game piece 10 a "finished" appearance. Another benefit derived from the dull coating 24 is that it substantially reduces the reflectivity of the substrate 12, thereby reducing the contrast between the substrate 12 and the printed images 20, 22. Thus, the application of the dull coating 24 to the game piece 10 makes it virtually impossible to detect the concealed image 22 without additive-light activation.

FIG. 4 shows a user 26 holding a game piece 10 up to a portion of a screen 28 of a monitor 30 which acts as a source of revealing light of the correct color (frequency). In accordance with the preferred embodiment of the invention, the revealing light emitted from the screen is blue additive light, and (at least a portion of) the screen 28 acts as a source of the revealing light. Consequently, when the user 26 holds the game piece 10 up to the portion of the screen 28 which provides the revealing light, typically as a blue rectangle, the concealed image 22 on the game piece 10 is revealed. As shown, a typical manner of obtaining the additive blue light needed to reveal the hidden image 22 on the game piece 10 is to place the game piece 10 on a blue area of the screen 28 of an operating computer monitor 30, thereby revealing the concealed image 22.

While the concealed image 22 is visible when the game piece 10 is held up to the blue portion of the screen 28, as shown in FIGS. 2 and 4, only the concealing image 20 is visible when the same game piece 10 is not exposed to a blue additive-light source (See, FIG. 1).

With continued reference to FIG. 4, the computer monitor 30 is typically connected to a microcomputer 32, which typically has a keyboard 33 and mouse 36. The microcom-

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puter 32 is preferably connected to a network 34, such as the Internet. This connection can be made in any number of ways, but is typically done using a modem over a telephone line, a direct network connection, a cable modem, or by a special purpose phone modem such as a digital subscriber line ("DSL") modem. Other network connections can be used, though, without departing from the spirit or scope of the present invention. Thus, when connected to the Internet, for example, the computer 32 may be running a "browser", such as Netscape or Microsoft Internet Explorer, and the browser may be directed to a URL, often called a "web site", such as the one printed on the game piece 10, as shown in FIG. 1. When at that web site, the user 26 can hold the game piece 10 up to a specific area on the screen 29 of a computer monitor 30, as shown, in order to decode the hidden image on the game piece 10.

With reference now to FIG. 5, a block diagram 36 illustrates the method of manufacturing the game piece 10 of the first embodiment of the present invention. In particular, block 38 illustrates the first step in manufacturing the game piece 10 which is to print the concealed image 22 on the substrate 12. In this step 38, the concealed image 22 is created by process printing colored ink dots on a transparent or translucent substrate 12. For best results, the concealed image 22 should be applied at 120–140 density, using high density fluorescent yellow ink.

Next, as illustrated in block 40, the second step in manufacturing the game piece 10 involves process printing the concealing image 20 over the surface of the concealed image 22. At a minimum, the concealing image 20 should be applied as a second layer in the area of the concealed image 22. However, the concealing image 20 is preferably applied over as much of the surface of the game piece 10 as desired. In printing the concealing image 20, colored ink dots of a different color than the ink dots which were used to create the concealed image 22 are used. Preferably, the concealing image 20 is printed using an ink which is of approximately the same color as the additive light source which will be used to reveal the concealed image 22. As will be obvious to one of ordinary skill in the art, if the game piece 10 is to be printed on a transparent or translucent substrate, the ink used should not be an opaque ink, as that would prevent additive light from passing therethrough. Thus, in a preferred embodiment of the invention the concealing image 20 is printed using high density fluorescent cyan ink applied at 140–150 density. In addition, it may be desirable during this step 40 to apply any other printed matter (i.e., other than the concealed image 22 and concealing image 20) which is to appear on the game piece 10. This other indicia 14 (See FIGS. 1 and 2) can be printed in any desired color or colors.

As illustrated in block 42, the third step in manufacturing the game piece 10 is the application of a dull coating 24 to the game piece 10. While it is not strictly necessary to employ this step 42, the application of the dull coating 24, helps to produce results which are superior to those obtained if the dull coating 24 is not used, as the dull coating 24 makes the hidden, concealed image 22 of the game piece 10 virtually undetectable until the game piece 10 is exposed to additive light of the correct color for activation. For best results, an aqueous dull coating 24 should be used.

Finally, block 44 contains the fourth step in manufacturing the game piece, which involves allowing the printed substrate to cure for a sufficient time, which is dependent upon the substrate, the ink, and the ambient temperature and humidity. However, 72 hours is generally a sufficient time.

While the game piece 10 of the first preferred embodiment has been described, other embodiments of the present

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invention have been found to provide desirable results which cannot be obtained using the game piece 10. Also, other methods of manufacturing alternative "game pieces" have been developed. Thus, with reference now to FIGS. 6–14, the design of, and a detailed description of the method of making another embodiment of a game piece 50, in accordance with the present invention, is described. The description of making the game piece 50 which follows is based upon the use of computer software to perform the layout and production of the game piece 50. In the preferred method, a programmed microcomputer, such as a PC (e.g., an "IBM compatible") or a MAC (e.g., an "Apple Macintosh" compatible) uses software, such as Adobe Illustrator and/or Adobe Photoshop to produce images which make up "layers" containing the concealing and concealed images. These layers are combined to produce the game piece 50. As will be further explained hereinafter, the game piece 50 may be produced and printed on a substrate 52, which may be either transparent, translucent, or opaque. Thus, the game piece 50 may be printed on plastic material, on paper, on cloth, or on other materials (e.g., advertising materials, mugs, or other promotional items). Alternatively, the "game piece" 50 may exist solely as a computer generated file, in a suitable format such as an Adobe Illustrator file (e.g., an ".ai", or ".eps" file), an Adobe Photoshop file (e.g., a ".psd" file), an Adobe Acrobat file (e.g., a ".pdf" file), or some other graphics file (e.g., a ".jpg" file, a ".bmp" file, or a ".tif" file) in which case it may be included in a web page (an "HTML" file) to be "distributed" over a network, such as the Internet, or on a diskette or CD-ROM, without departing from the present invention. The description which follows describes specific steps which are carried out on a computer using Adobe Illustrator and/or Adobe Photoshop, both of which are produced and distributed by Adobe Systems Incorporated, 345 Park Avenue, San Jose, Calif. 9510-2704. While Adobe Illustrator and Adobe Photoshop are used in the preferred method of preparing electronic game pieces, other software could be used without departing from the present invention.

Starting with Adobe Illustrator, one begins to produce the game piece 50 by creating a new document. In the new document, it is desirable to set the resolution to be about 2540 dots per inch ("dpi") in order to permit printing at very high resolution. Once a new document has been opened, one first creates a wavy line, such as wavy line 60, shown in FIG. 7. The wavy line 60 is a Bézier path, having endpoints 62, 64. While Bézier paths are produced in Adobe Illustrator, other wavy line paths, such as sine waves, could be used, as the only significance of the wavy line path is that it will be used as a baseline for producing concealing text which undulates, so as to have an appearance which is ultimately quite effective at hiding the hidden text.

By selecting the end point 62 of the wavy line 60 using the Reflect (Mirror) Tool and then copying the wavy line 60 about a vertical axis, the wavy line 60 is replicated as a mirror image adjacent to the original wavy line 60. The end point 64 of the original wavy line 60, and the adjacent end point of the replicated version of the wavy line (not shown) are joined using a smooth join, so as to make a single new wavy line which is twice the length of the original wavy line 60. In the preferred embodiment of making the game piece 50, this process is repeated a number of times so as to obtain an elongated, undulating wavy line 70, as shown in FIG. 8. The purpose of producing the elongated, undulating wavy line 70 is to use it as the "baseline" path for the concealing image, which is typically a typed name, phrase, URL, or other advertising indicia, as shown at 54 in FIG. 6.

Using the Path Type Tool, the text which will be used to produce the concealing image 54 is next entered on the

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elongated, undulating wavy line 70, thereby producing a line of wavy text 72, as shown in FIG. 9. Those familiar with Adobe Illustrator will recognize that the elongated, undulating wavy line 70 does not appear in the ultimate image 54, but that it is used as the "baseline" for text to be entered on the elongated wavy line 70. Thus, while the elongated, undulating wavy line 70 is visible when producing the Illustrator artwork, it is not visible on the printout when the artwork is printed, as shown in FIGS. 6 and 9-11.

Referring next to FIG. 10, the line of wavy text 72 (FIG. 9) is duplicated a number of times to produce an image 74 comprised of multiple copies of the line of wavy text 72. As the purpose of the concealing image 54 (See FIG. 6) is to obfuscate the concealed image on the game piece 50, it has been found that it is best to avoid having repeated, identical lines of wavy text 72, as that produces flowing "rivers" of white space 76, or flowing white space areas 78 with minimal text (e.g., lines of periods, as shown) through which any discontinuity, such as the concealed text image, would be relatively easy to perceive.

Accordingly, the next step in the preferred embodiment of the invention, is illustrated in FIG. 11 in which each line of text is preferably modified by adding and/or deleting characters, or otherwise offsetting the text, such that adjacent lines are not identical, thereby producing an offset wavy text pattern 80, in which adjacent lines, i.e., lines 82, 84 are offset, such that the white space "rivers" 76, and the other flowing white space areas 78 (See, FIG. 10) are substantially eliminated. Thus, the offset wavy text pattern 80 of FIG. 11, appears to be far less uniform than the repeated wavy text pattern 74 of FIG. 10. As will be recognized by those skilled in the art, this offsetting of the concealing text further serves to provide a concealing image 54 (FIG. 6) which will obfuscate a hidden image.

Once the offset wavy text pattern 80 has been produced, it is used to create one or more concealing image masks, such as the mask 82 shown in FIG. 12. To create the mask 82 using Adobe Illustrator, one starts with the offset wavy text pattern 80 of FIG. 11. Then, using the Rectangle Tool, a rectangular box 84 is drawn around the wavy text pattern 80. The rectangular box 84 is sent to the back of the image, and it is hidden. Next, the text, which has been formed using a suitable font, is converted into outlines. It has been found that to be desirable to use a font, such as Arial Black, or other relatively wide (or bold) sans serif font to produce the concealing text. Thus, in the preferred embodiment, Arial Black, 12 pt. font is used.

The text in the wavy text pattern 80 must be converted to "outlines" so that it can be integrated into the mask 82. Accordingly, the next step in the inventive method involves releasing the compound paths, selecting all of the objects, and then making compound paths. This step is used, because a mask must be a single "shape" defined by a compound path. Finally, the Select Tool is clicked outside of the box 84 to yield the mask 82, as shown in FIG. 12. While color has not been a factor thus far in the development of the mask 82, which is typically produced in black with white "text" (actually the paths defining the text, as the text no longer exists once it has been converted into a compound path), it is now necessary to invoke the color selection process to produce at least one mask, but preferably two masks, which can be saved as computer files, preferably in a format which can be imported into Adobe Photoshop.

In the preferred embodiment of the invention, the first mask, called the lower mask, is colored yellow (where the mask 82 is black) by selecting the image 82 and then

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adjusting the color palette to all yellow (setting yellow's value to 100) with no cyan, magenta, or black (setting these values to 0). This mask, called the "Yellow Mask", should be saved in a suitable format (e.g., as an ".eps" file). After saving the Yellow Mask, the color palette can be adjusted to provide a cyan image (by changing the value of cyan to 100 and the value of yellow to 0, with the black and magenta already set to 0), and the second, or upper mask, which may be called the "Cyan Mask" is saved, again, preferably as an ".eps" file.

Having created both the Yellow and Cyan Masks, which will be used to conceal the hidden image, it is now necessary to create the hidden text image. Referring to FIG. 13, the concealed or hidden text 90 can be simply typed onto a blank document in a suitable font. It has been found to be beneficial to use a relatively large serif font, such as a 36 pt. Times font, and to form it in an outlined stroke 92 with a white interior 94, with the stroke 92 having the same color as the lower mask, i.e., yellow in the preferred embodiment of the invention. Thus, in the preferred embodiment of the invention, the hidden text image 90 is formed using a yellow stroke 92, having a thickness of between about 1 pts and 4 pts, and a white fill 94, as shown. After completing the hidden text image 90, it, too, is saved, preferably as an ".eps" file.

Having created three separate files—one each for the Yellow Mask, the Cyan Mask, and the Hidden Text, it is time to assemble them into a single image. While the assembly can be accomplished in Adobe Illustrator (in which case all of the foregoing could be accomplished in a single document without intermediate file saving), in the preferred method, the assembly is accomplished using Adobe Photoshop, as there are several functions available in Adobe Photoshop (e.g., filters, and color modifications) which make it easy to create unique patterns, colors, and/or formats.

After starting Adobe Photoshop, the Yellow Mask, Cyan Mask, and Hidden Text images are loaded, and a new file is created. The Yellow Mask is selected, copied, and pasted into the new file (alternatively, of course, the Yellow Mask file could be used as the "new" file, and it could simply be renamed, so as to preserve the original file's integrity, as it may be needed again). At this point, the first layer of the new image has been placed into the new file, where it is identified as Layer 1 (using Adobe Photoshop nomenclature). Next, the Hidden Text image is selected, copied, and pasted into the new file, where it becomes Layer 2. Finally, the Cyan Mask is selected, copied, and pasted into the new file, where it becomes Layer 3.

At this point, Adobe Photoshop will have a single file with Layers 1, 2, and 3 overlaying each other. In order to help hide the Hidden Image (Layer 2), Layer 3 should be offset vertically and horizontally somewhat from Layer 1. This step is readily accomplished using the Move Tool to move either Layer 1 or Layer 3. Usually, an offset of about one-half a character horizontally, and about one-half a line vertically is sufficient. In addition, or alternatively, Layers 1 and/or 3 can be "distorted", such as by using the "spherize" filter and/or the "twirl" filters. Note, that Layer 2, which contains the hidden text should not be distorted in any manner which will adversely affect one's ability to read the hidden text. Layer 3 should be placed in "multiply" mode, whereby the overall image will appear green from the blending of the cyan in Layer 3 with the yellow in Layers 1 and 2.

At this point, the image thus formed can be cropped, so as to eliminate the yellow and cyan edges which appeared

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when Layers 1 and 3 were offset. The Photoshop image should now be saved in Photoshop ("psd") format to preserve the layers in the event that additional game pieces, with different hidden messages (i.e., different Layer 2's) are to be produced with the same Layers 1 and 3. Then, depending upon the ultimate use for the game piece 50, the present invention provides for a number of options and uses for the game piece 50.

Referring now to FIGS. 14-16, the method of making the game piece 50 of the present invention is explained. First, with reference to FIG. 14, a flow chart 100 sets forth the steps used to create mask image 82 (FIG. 12). The first step 102 is to create a wavy line path (See, elongated wavy line path 70, FIG. 8). In the next step 104, the concealing text is placed on the wavy line path (See, wavy text 72, FIG. 9). The line of wavy text is then replicated 106 to form adjacent, identical lines of wavy text (See, 74 in FIG. 10). Then, the text in the adjacent lines is offset 110 (See, 80 in FIG. 11), and a mask (See, 82 in FIG. 12) is produced 110. Copies of the mask are then colored and saved 112.

Referring to FIG. 15, the process of creating the image of the hidden text 90 (FIG. 13) is shown in flow chart 114. This process involves the steps of creating the hidden text message 116, coloring the hidden text 118, and saving the hidden text file 120.

The process of using the mask and hidden image files to create an electronic game piece is described in the flow chart 130 shown in FIG. 16, in which the first step 132 is to load the mask and hidden image files into Adobe Photoshop. Next, as shown in block 134, the Yellow Mask is placed as Layer 1 in a file. Then, as shown in block 136, the hidden message file is placed into the file, as Layer 2. In the following step 138, the Cyan Mask is placed into the file as Layer 3. In the following step 140, Layers 1 and 3 are misaligned, and either, or both, of them can be optionally filtered (e.g., spherized and/or twirled). At this point the Photoshop ("psd") file should be saved, so that it may be recalled as a three layer Photoshop ("psd") file thereby enabling easy replacement of Layer 2 (the Hidden Message layer) for different game pieces in the same game. This way several game pieces can be made to appear virtually identical, even though they have different hidden text messages. Finally, in step 144, the mode of Layer 3 (the cyan layer) is changed to "multiply", the layers are "flattened", the color mode is changed to RGB, and the file is saved in a suitable format (e.g., as a ".jpg" file) for electronic distribution and/or printing. Optionally, in this step 144 the RGB curves can be adjusted to give the image a magenta (rather than green) appearance in order to enhance the effect produced.

To make a game piece 50 substantially equivalent to the game piece 10, the additional indicia 14, including the URL 16 and serial number 18, can be added, the electronic game piece 50 can be sized, and it can then be printed on paper or a suitable transparent or translucent substrate. It can even be printed on a transferable substrate for application to cloth (e.g., a T-shirt transfer) or to a mug, for example. If printed on a polyethylene substrate 52, the main difference between the present embodiment of the invention and the embodiment 10 is that the present embodiment 50 includes the Yellow Layer under (or incorporated with) the Hidden Text Layer, in addition to the Cyan Layer above the Hidden Text layer. It would still be desirable, of course, to provide a "dull finish" layer as an overcoat.

The present embodiment 50 of the invention, provides several new areas for exploiting game pieces of the type

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described. In particular, the game piece 50 can be made to exist solely as an electronic image. In that regard, additional manipulation in Photoshop can provide a unique file, having capabilities not available with the game piece 10. In particular, the three layers of the Photoshop image can be "flattened", the mode of the image can be changed into RGB mode, and the flattened image can be sized and saved as a "jpg" file. The RGB ".jpg" file can then be displayed directly on a computer monitor, as part of a piece of software, or as an image served up by a web server. Thus, instead of having to distribute unique game pieces, as is necessary with the game piece 10, instead, electronically produced unique game pieces 50 (differing from one another by their hidden text message, for example) can be served up at a web site at different times, such that a large prize "winner" will only be exposed (served) for a limited amount of time, while other prizes, and non-winners can be exposed at other times. Since the hidden message on the electronic game piece 50 can be changed and displayed on Internet web sites, as desired, it is even possible to use the game piece 50 as the basis for sending coded messages over the Internet, or via e-mail. In that regard, it may be desirable to have the top layer be patterned, rather than all cyan. For example, if the top layer is formed in stripes of cyan and magenta, a the decoder piece, corresponding to a filter having cyan and magenta stripes would be used to decode the image.

In order to view the hidden image on the electronic game piece 50 of the present embodiment of the invention, a user would hold up a colored filter, which could be distributed for use with multiple games. Such a filter could be in the form of a colored plastic sheet (See, FIG. 18), or a pair of eyeglasses (See, FIG. 19) having colored plastic lenses. In the preferred embodiment of the game piece 50, the plastic sheet or the lenses in the eyeglasses would be blue (cyan).

In converting images to RGB format in Photoshop, it has been discovered that a very effective result can be obtained by reversing the image curve for the RGB channel (using the menu selections Image|Adjust|Curve), so that the input is switched from 255 to 0, while the output is switched from 0 to 255. This adjustment of the RGB curve provides an electronic image which looks like magenta over blue, and which is very effective at further obfuscating the hidden image.

While the preferred method of making the present invention has been described in detail, other variations can be employed without departing from the spirit or scope of the invention. Thus, it may be desirable to include a logo on the game piece, and this can readily be accomplished by setting the logo in cyan with a white outline, and placing it on top of the normal wavy pattern in the cyan layer. Then, above the yellow layer, the hidden copy can be set in a san-serif format in yellow with a very wide white outline (preferably on the order of from about 8 to 12 points), and the hidden image would be set just under where the logo placement would be. In this format, it has been found that the hidden copy should not be formed in type more than 14 points high. No changes to the bottom layer will be needed.

While the hidden image game piece of the preferred embodiment of the invention, along with the manner in which it is made have now been fully described, it has been found that other variations of the present invention can be made. In particular, in the preferred embodiment thus far described, the game piece is formed with both a hidden image and a concealing image, and the revealing light source (which is blue light in the preferred embodiment of the invention) is generated on the screen of a computer monitor. It has been found that hidden image game pieces thus

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formed in accordance with the preferred embodiment of the invention are an ideal way to drive recipients of such game pieces to a web site on the Internet, as the game pieces may include indicia about contests, discounts, or other items of interest to a recipient. As the recipient will not know whether the game piece which they receive (e.g., in a mailing, in a box or other container containing goods, in an advertising piece, etc.) is a "winner" until subjected to the revealing light source, they are induced to go to the provider's web site to hold the game piece up to a specified location on a specified web page. In order to gain access to the specified web page, it may first be necessary for the recipient to enter demographic information on one or more preceding web pages, or they may be subjected to advertising by the operator of the web page. Thus, one application of the game piece is to provide a basis for driving recipients to a web page hosted by the game piece supplier.

As the revealing light source which is generated on the computer monitor is only a source of additive light having the correct color, an alternative method of using the game piece 50 is to have the recipient come to a retail outlet operated by the game piece provider to check out whether or not they hold a "winning" game piece which could be good for discounts in the store, or other prizes. This can be accomplished in a number of ways. For example, a retail store can have a computer set up, and holders of game pieces can be asked to enter demographic information prior to a revealing light source being made available on the computer monitor. In this embodiment, it is not necessary for game piece recipients to have access to the Internet, or to even own a computer. Alternatively, a simple computer monitor-like display can be in the store, and it need only have a source of revealing light displayed thereon, and no computer or computer monitor need be available in the store.

While a number of ways to use the game piece heretofore described have been set forth, it has been discovered that the image formed on the game piece 50, and printed on the substrate can also be produced in the form of a computer generated image which can be displayed on a computer monitor or printed on an opaque substrate, such as a piece of paper, or on a post card, a box or other container, or otherwise made available for distribution. If the hidden image game piece 50 thus formed is displayed on a computer monitor, for example, a user can receive a game piece (See game piece 160, FIG. 18) which contains a filter of the correct color, on a piece of plastic. Alternatively, the user can receive a pair of eyeglasses containing lenses of the correct color (See FIG. 19). In this embodiment of the invention, it is not necessary for the recipient to receive multiple game pieces to play a number of times, as new images can be periodically placed on a web site, and the player (i.e., the recipient of the revealing game piece or eyeglasses) can repeatedly revisit the web site to see if a winning image is being displayed at the time when they "visit". Advantages of this latter embodiment are that the task of distribution of a game decoding piece need occur only once, yet the recipient is induced to repeatedly visit the game site in order to check on whether they have "won" a prize. Thus, if the game piece 50 is being used in connection with an advertising promotion, it is possible to distribute a single game decoding piece once, while inducing the recipient to "play" a number of different games, or the same game a number of different times.

The present game pieces 10, 50 provide for numerous of business opportunities which can be exploited over a network, such as the Internet. In particular, a first such business opportunity can be expressed as a business model

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involving the steps 152, 154, 156, 158 illustrated in the flowchart 150 shown in FIG. 17. In this business model, the first step 152 involves producing game pieces by printing them on a transparent substrate. The game pieces 10, 50 can be produced by any of the methods heretofore described, and the game pieces 10, 50 may include a hidden message, as do the game pieces 10, 50, or they may simply be colored filters (See, FIG. 18) or eyeglasses (See FIG. 19) for use with a computer generated electronic game piece 50, as described above. In the next step 154, the game pieces are distributed with directions to "visit" a game site. As described above, a game site can be an Internet web site ("address" or "URL") on the World Wide Web, or it may be a physical location, such as a retail outlet. The user, having the game piece will then "go to" the game site. When the user "goes to" a physical game site, such as a retail outlet, they will be in a position where the game piece provider is able to collect demographic information from the user, offer a credit card to the user, show the user products available for sale, or simply have the user pass through the retail outlet, prior to allowing the user to "play" by availing the user of a source of additive light. As described above, the source of additive light could be provided by a computer monitor attached to a computer programmed to obtain the demographic information from the user. Alternatively, the source of additive light could be a computer monitor "mock up" which simply provides, for example, a screen having a blue rectangular area.

Alternatively, the step 156 could be an information gathering form on a page of a web site, into which a user must insert demographic information, or some advertising or promotional screen at a web site, which a user must go to prior to being able to press a "button" which ultimately takes the user to the actual game site page where the source of additive light is provided.

As a further alternative to the foregoing method of providing advertising and/or obtaining demographic information from a user, the game piece 160 provided to the user can contain a filter 162 which may be a colored area of the game piece 160, as shown in FIG. 18. The game piece 160 can also contain other advertising 164 and address indicia 166. Alternatively, it could be in the form of a pair of "eyeglasses", which may be simply plastic or cardboard frames 170 having suitable filters 172 for lenses, and which may contain advertising 174 thereon, as shown in FIG. 19.

Yet another business model made available by the game piece of the present invention involves the creation of the game pieces themselves. Thus, an Internet web site can be established which contains a number of templates for game pieces, such as the game pieces 50 of FIG. 6 or the game piece 160 of FIG. 18. At the web site a user could be asked to "fill in" a selected template with appropriate advertising indicia and/or enter one or more "hidden messages", and the text for the concealing image (See 54, FIG. 6). The user could then be asked to provide ordering information to have game pieces provided (either by remote printing and production) or in an electronic file format (such as one or more ".jpg" files). Payment could be solicited from the user via credit card, or other form of billing, and delivery could be accomplished either physically, or electronically (e-mail, etc.).

The steps set forth above, are illustrated in the flowchart 180 of FIG. 20 wherein the first step 182 is to create at least one template for producing electronic game pieces. The template could be similar to the game piece 50 shown in FIG. 6, except that "fill-in fields" would be shown, instead of the information of a specific user. The next step 182 is to make the template(s) available at a particular web site on the



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Internet. A user who "goes to" the web site will be presented with a form or other method of filling in the fields with their own unique hidden message, their own concealing message, and, optionally, such other indicia (e.g., advertising, logos, their own art work which could be uploaded, etc.) for inclusion into a game piece to be produced, as shown in step 184. Once a user has selected a template, and provided the appropriate information (or uploaded images, such as a ".jpg" file with photos, logos, etc.), an electronic file is produced corresponding to the filled-in template and user provided information and/or data, as shown at step 186. The user is then presented with a form, whereby the user can provide delivery and payment (e.g., credit card) information, as shown at step 188. Finally, the game piece which is produced, either automatically or manually, is "delivered" to the user, either in physical or electronic form (or both), as represented by step 190.

Although the description above contains many specificities, these should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of this invention. The scope of the invention should be determined by the appended claims and their legal equivalents, rather than by the examples given.

What is claimed is:

1. A game piece with a hidden image comprising:
  - (a) a first visible layer comprising an image formed in a first color, said first layer being formed in a manner which will assist in obfuscating an image to be hidden;
  - (b) a second visible layer containing an image to be hidden, said second layer being formed in said first color;
  - (c) a third visible layer comprising an image formed in a second color, said second color being distinct from said first color, said third layer being formed in a manner which will assist in obfuscating said image to be hidden which is on said second layer.
2. The game piece of claim 1 wherein said image on said first layer is comprised of text.
3. The game piece of claim 1 wherein said hidden image game piece is formed as an electronic image.
4. The game piece of claim 2 wherein said image on said third layer is comprised of text.
5. The game piece of claim 4 wherein said image on said first layer and said image on said third layer are comprised of the same text.

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6. The game piece of claim 5 wherein said first color is selected from the group consisting of cyan, yellow, and magenta, and said second color is selected from said group consisting of cyan, yellow, and magenta.

7. The game piece of claim 5 wherein said text is formed in lines.

8. The game piece of claim 6 wherein said first color is yellow and said second color is cyan.

9. The game piece of claim 7 wherein said text is formed in wavy lines.

10. The game piece of claim 9 wherein said wavy lines of text on said first layer are displaced, whereby columns of white space are minimized.

11. The game piece of claim 10 wherein said wavy lines of text on said third layer are displaced, whereby columns of white space are minimized.

12. The game piece of claim 11 wherein said image on said first layer is filtered.

13. The game piece of claim 11 wherein said image on said third layer is filtered.

14. The game piece of claim 11 wherein said first layer and said third layer are identical but offset from one another.

15. The game piece of claim 13 wherein said hidden image on said second layer is text.

16. The game piece of claim 15 wherein said text on said first layer is formed in a san serif font.

17. The game piece of claim 16 wherein said text on said second layer is formed in a serif font.

18. The game piece of claim 17 wherein said font used on said hidden text is larger in point size than said font used on said text in said first layer.

19. The game piece of claim 18 wherein said font used on said hidden text is formed in outline with a transparent interior.

20. The game piece of claim 14 wherein said offset is approximately one-half character horizontally.

21. The game piece of claim 20 wherein said offset is approximately one-half line vertically.

22. The game piece of claim 3 wherein said image is saved as a single layer.

23. The game piece of claim 22 wherein said image is saved in RGB mode, whereby it can be displayed on a monitor.

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US 20020091575A1

(19) **United States**(12) **Patent Application Publication**  
**Collart**(10) **Pub. No.: US 2002/0091575 A1**(43) **Pub. Date: Jul. 11, 2002**(54) **SYSTEM, METHOD AND ARTICLE OF  
MANUFACTURE FOR IDENTIFYING AND  
TRACKING USAGE OF A LAZER-CENTRIC  
MEDIUM****Publication Classification**(51) **Int. Cl.<sup>7</sup> ..... G06G 1/14; G06F 17/60**(52) **U.S. Cl. .... 705/22**(76) **Inventor: Todd R. Collart, Los Altos, CA (US)**

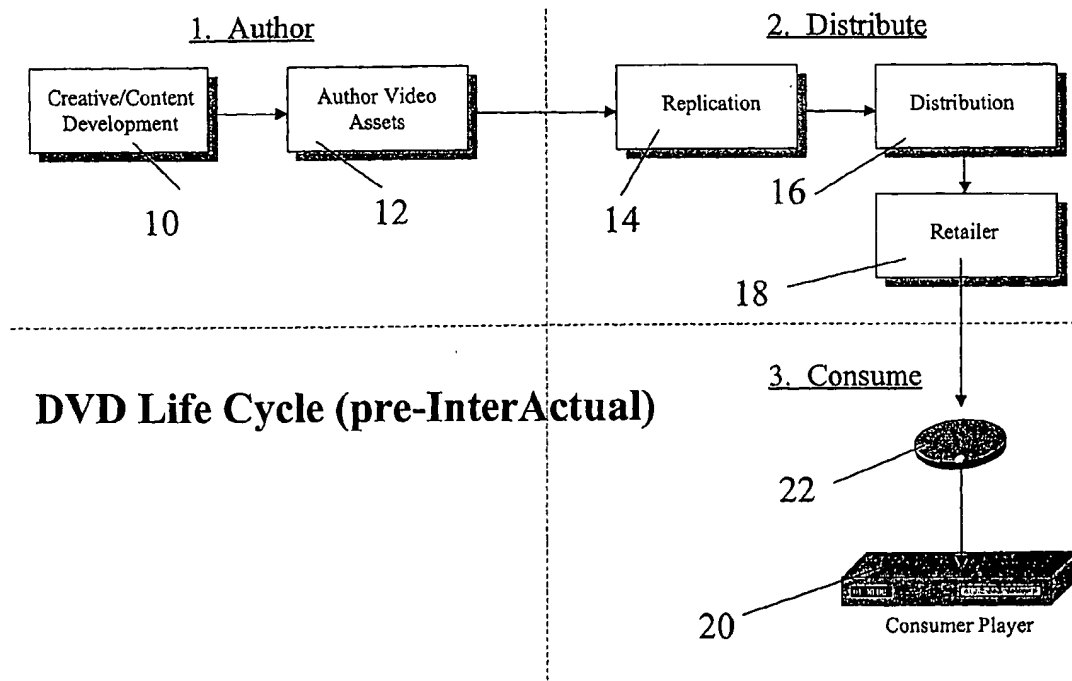
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**ABSTRACT**

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The present invention provides a system, method and apparatus for tracking usage of a recording medium based on an identifier stored on the recording medium. An indicia corresponding to the identifier of the recording medium is received from a client device upon the recording medium being input into the client device by a user. An indicia identifying the client is received from the client device. A characteristic of the storage medium is identified based upon the received indicia corresponding to the identifier. Then, the client device is identified based upon the received indicia identifying the client device. The characteristic of the recording medium and the identity of the client device are then stored in a database.

(21) **Appl. No.: 09/912,079**(22) **Filed: Jul. 24, 2001****Related U.S. Application Data**(63) **Non-provisional of provisional application No.  
60/220,400, filed on Jul. 24, 2000.**

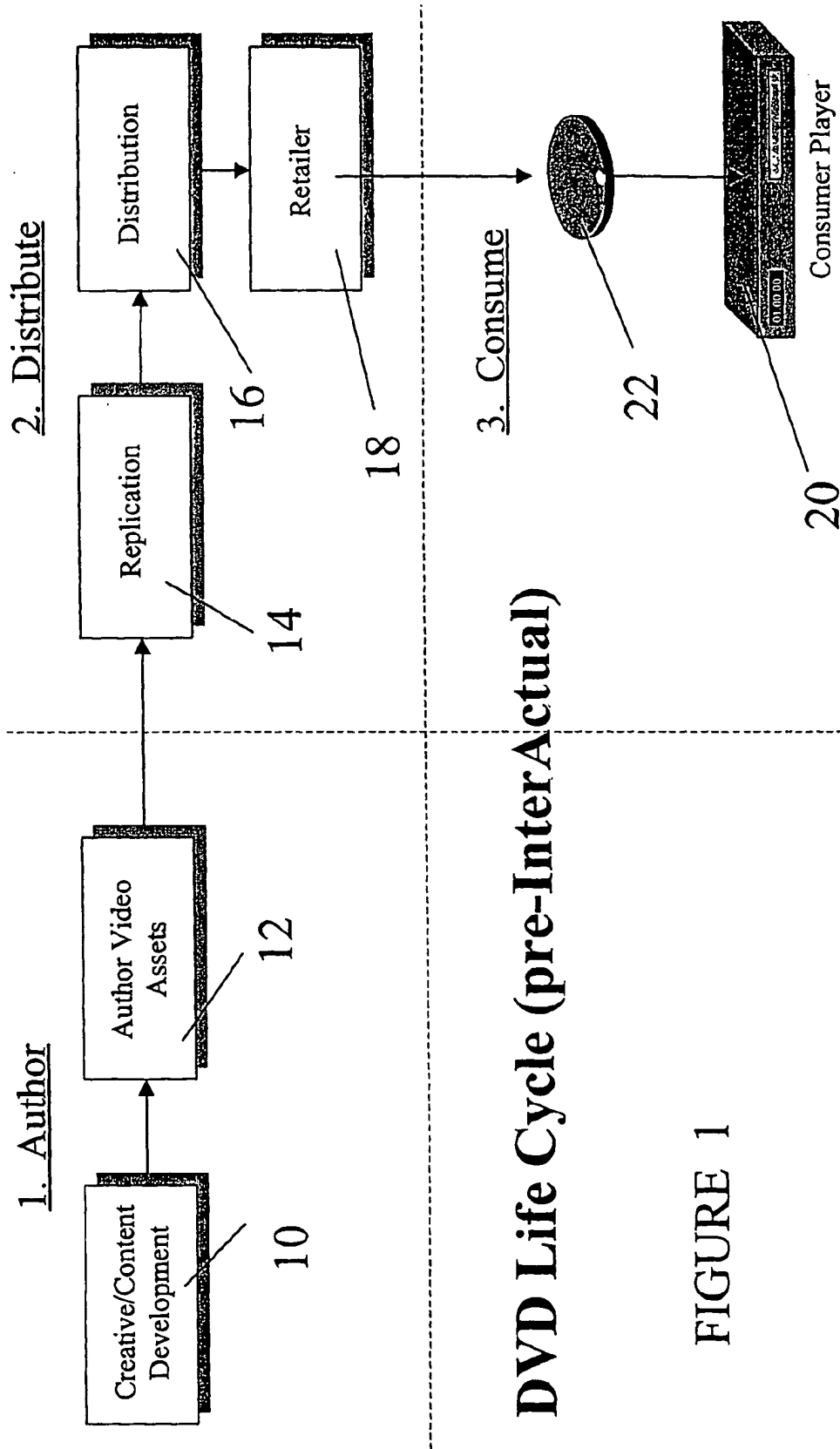
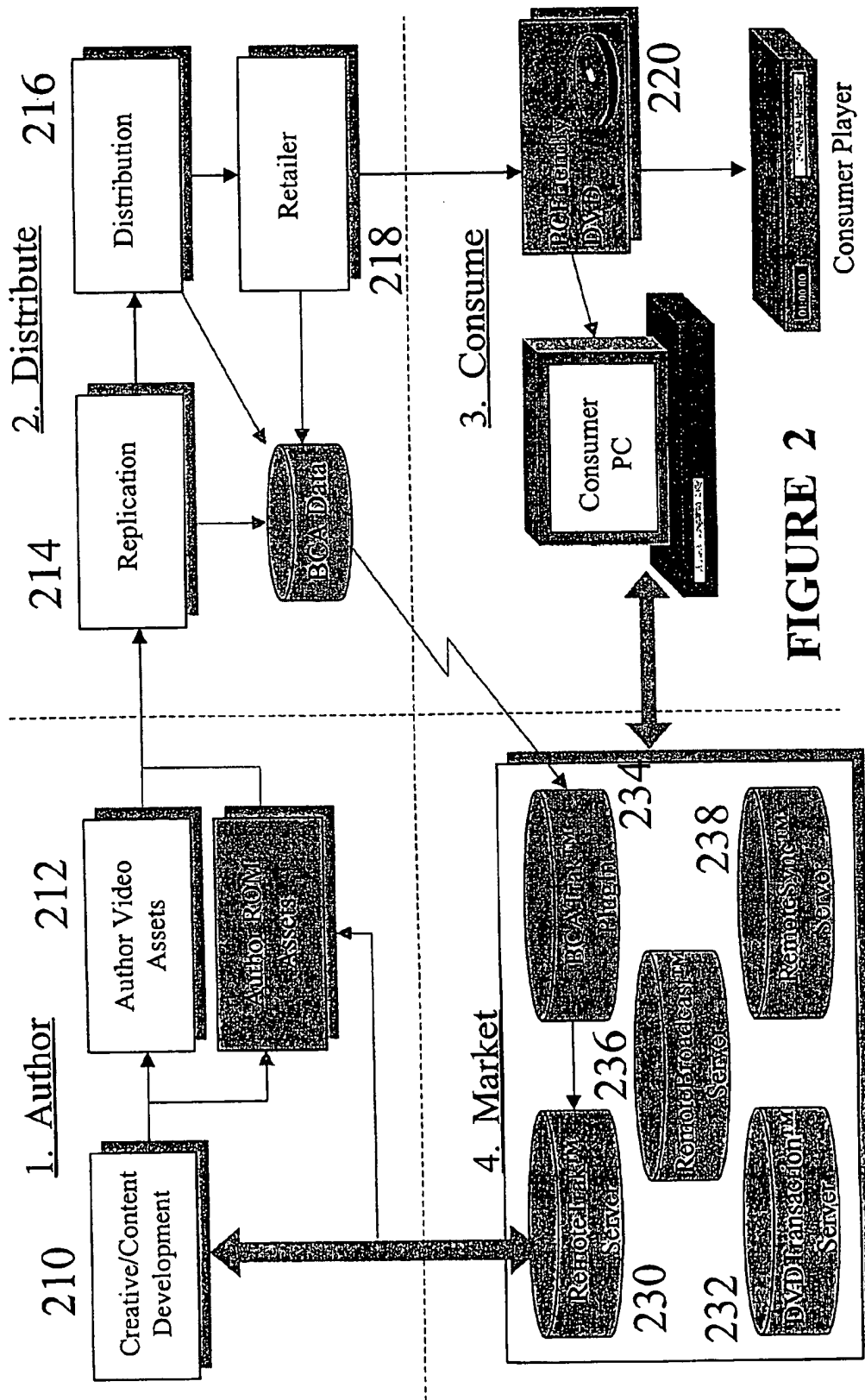
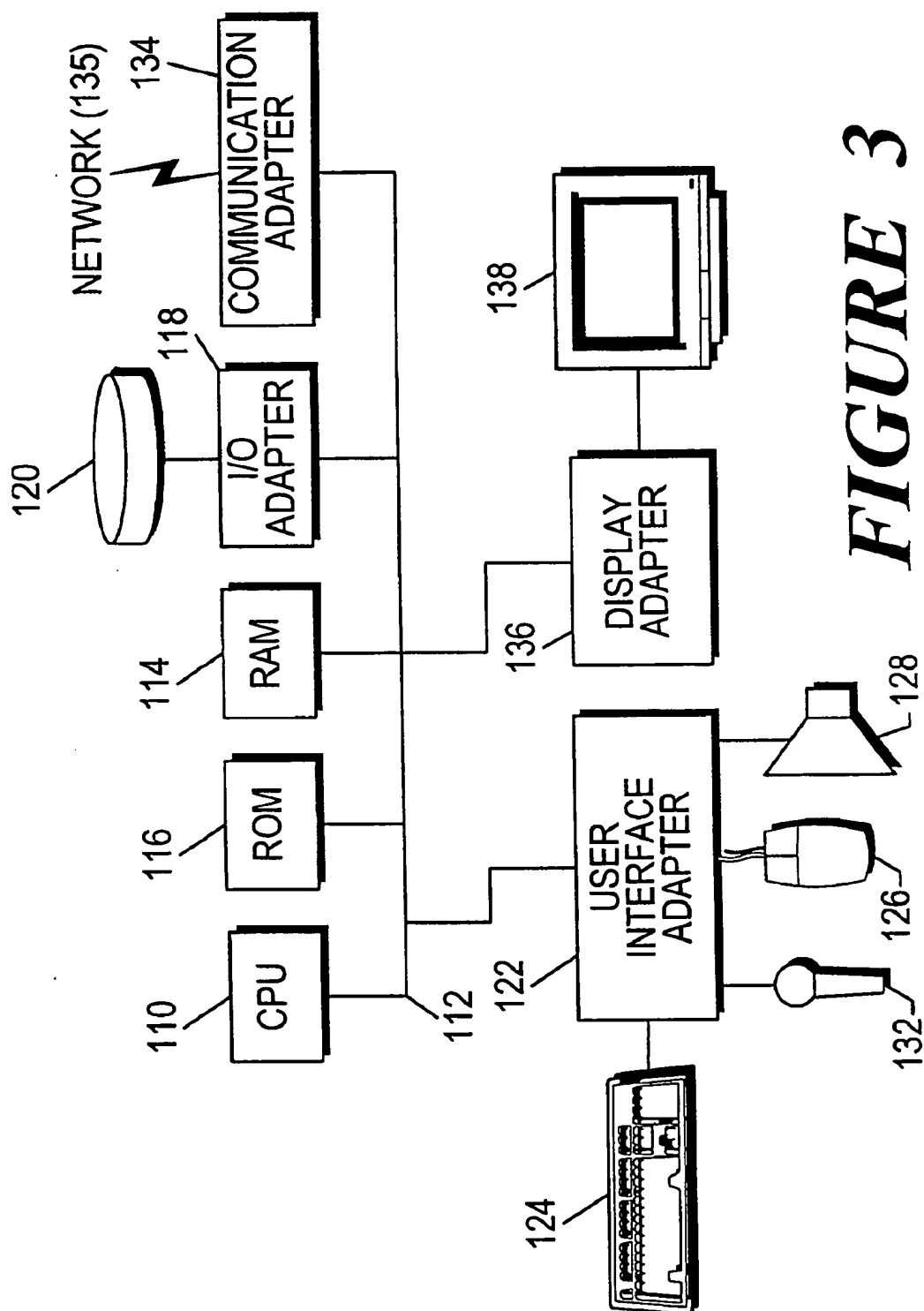


FIGURE 1





## DVD Life Cycle (pre-InterActual)

### Overview:

- 1) Very similar life cycle to video cassette: video is authored, distributed to retail centers/outlets, purchased by consumer for playback on TVs.
- 2) Linear life cycle: No further contact with consumer.

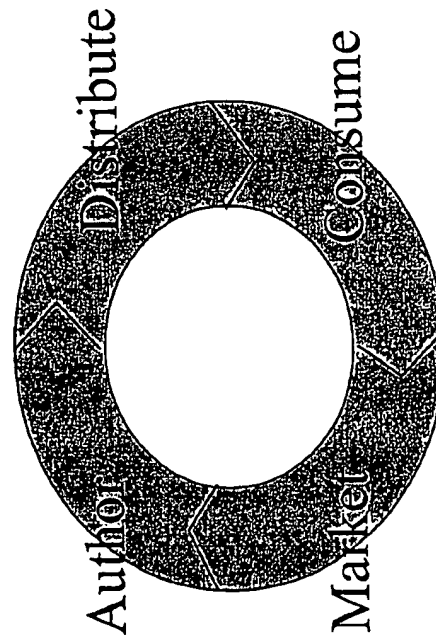


**FIGURE 4**

## DVD Life Cycle (w/InterActual's Software)

### Overview:

- 1) PC market offers a completely new phase to DVD's life cycle: marketing. Motivating PC consumers to purchase and interact with DVDs provides for additional branding and direct marketing opportunities online.
- 2) Performance and usage information collected online can be used to influence content creation process - turning the linear life span into a cyclical one
- 3) Internet can be used to deliver new content.



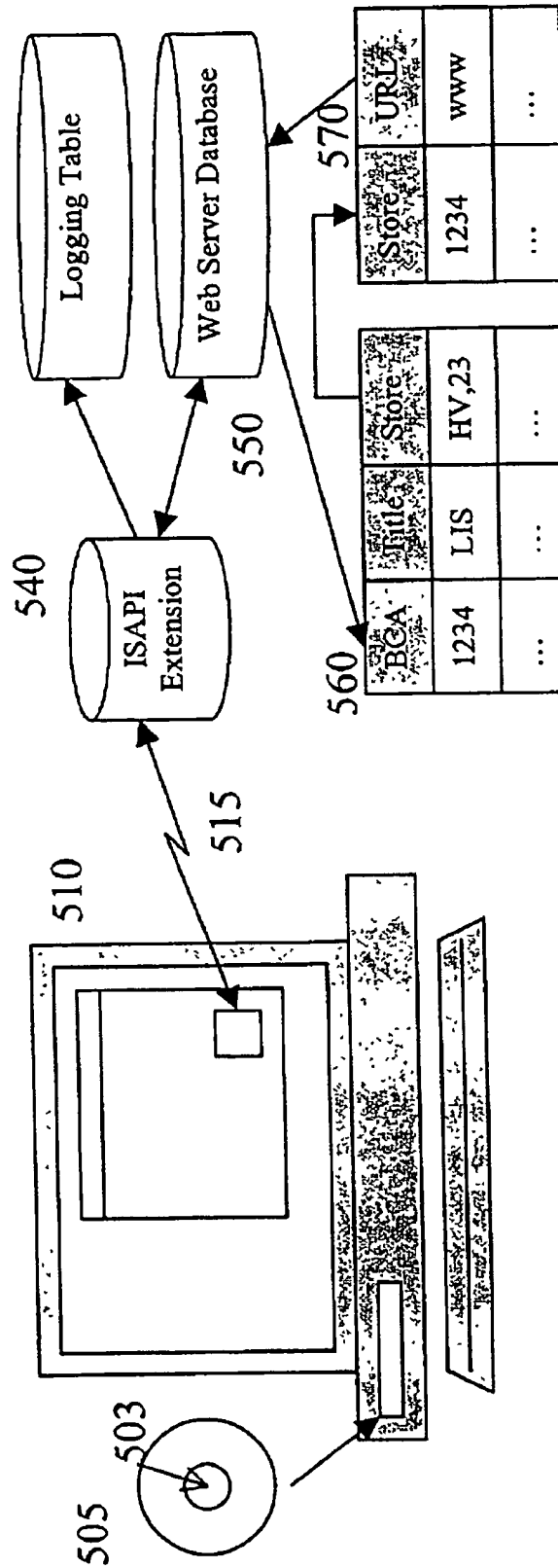


FIGURE 5

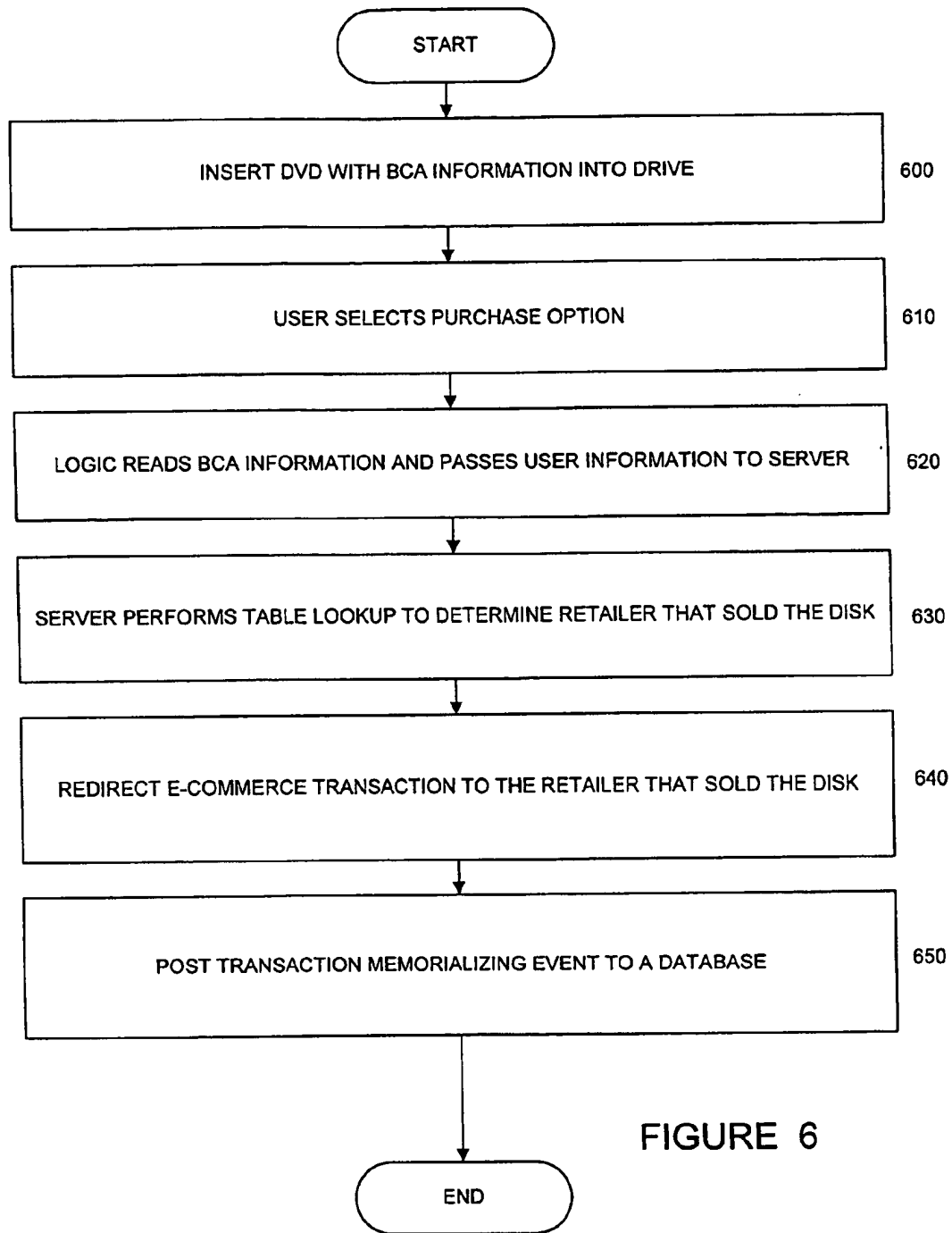


FIGURE 6



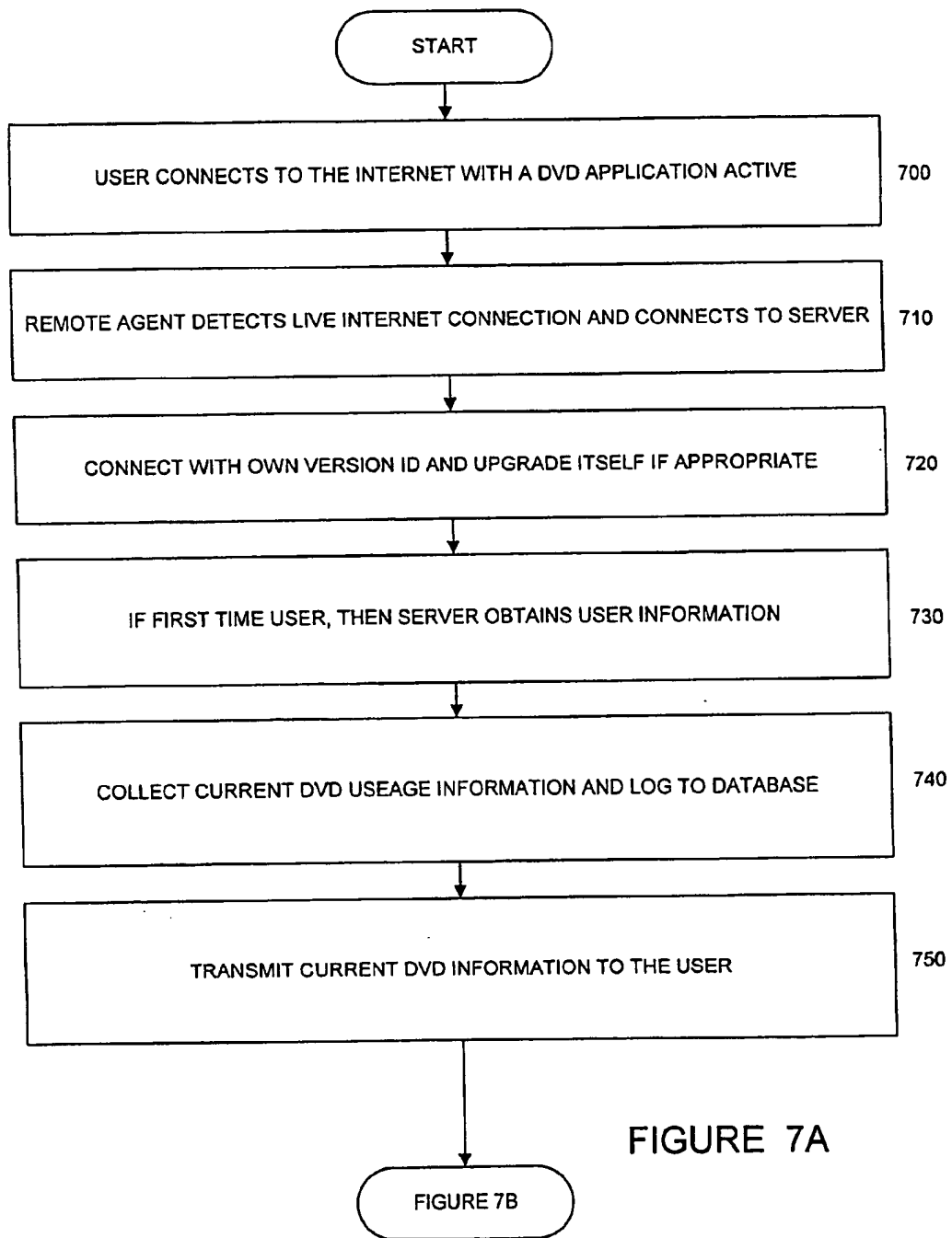


FIGURE 7A

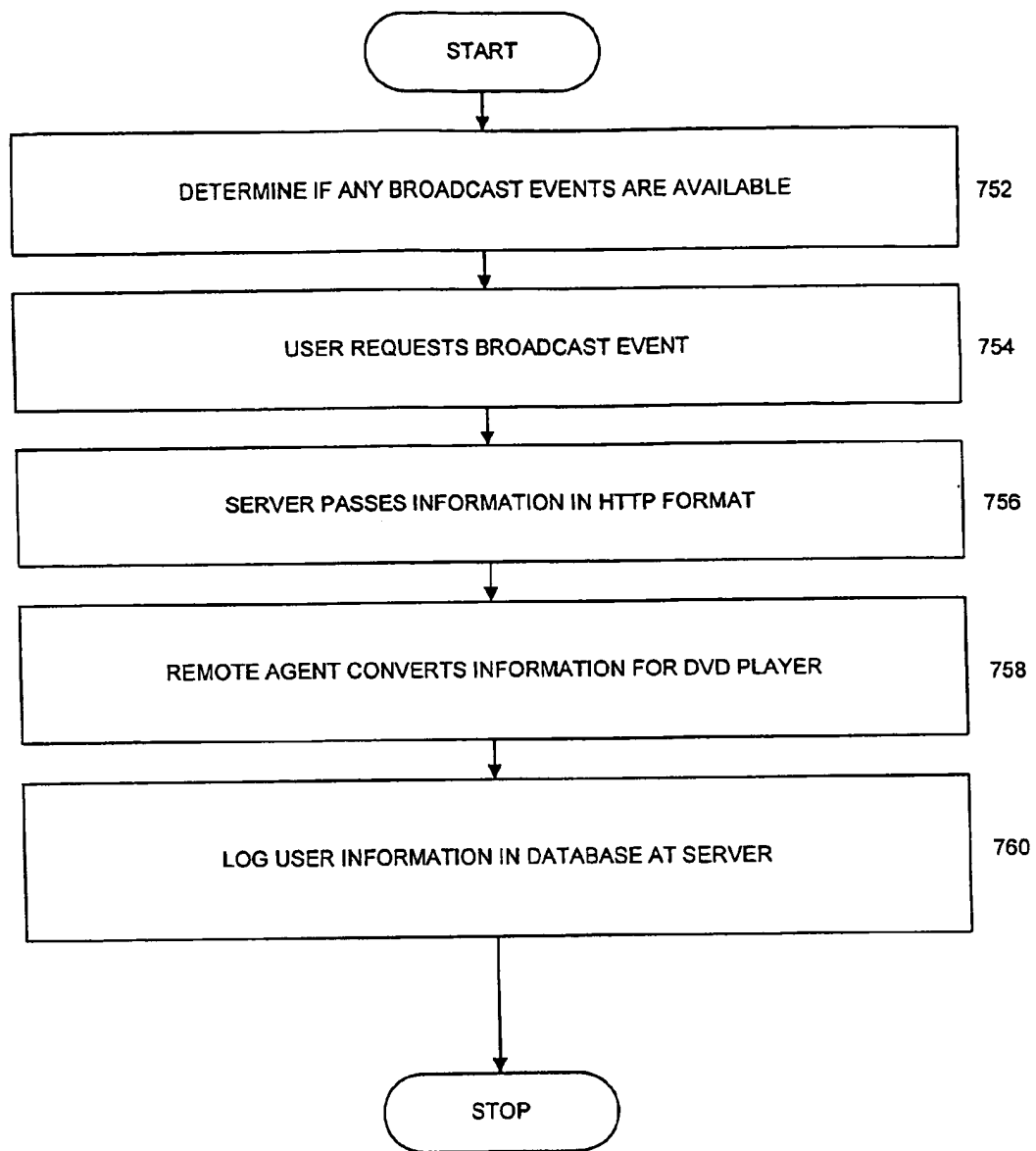


FIGURE 7B

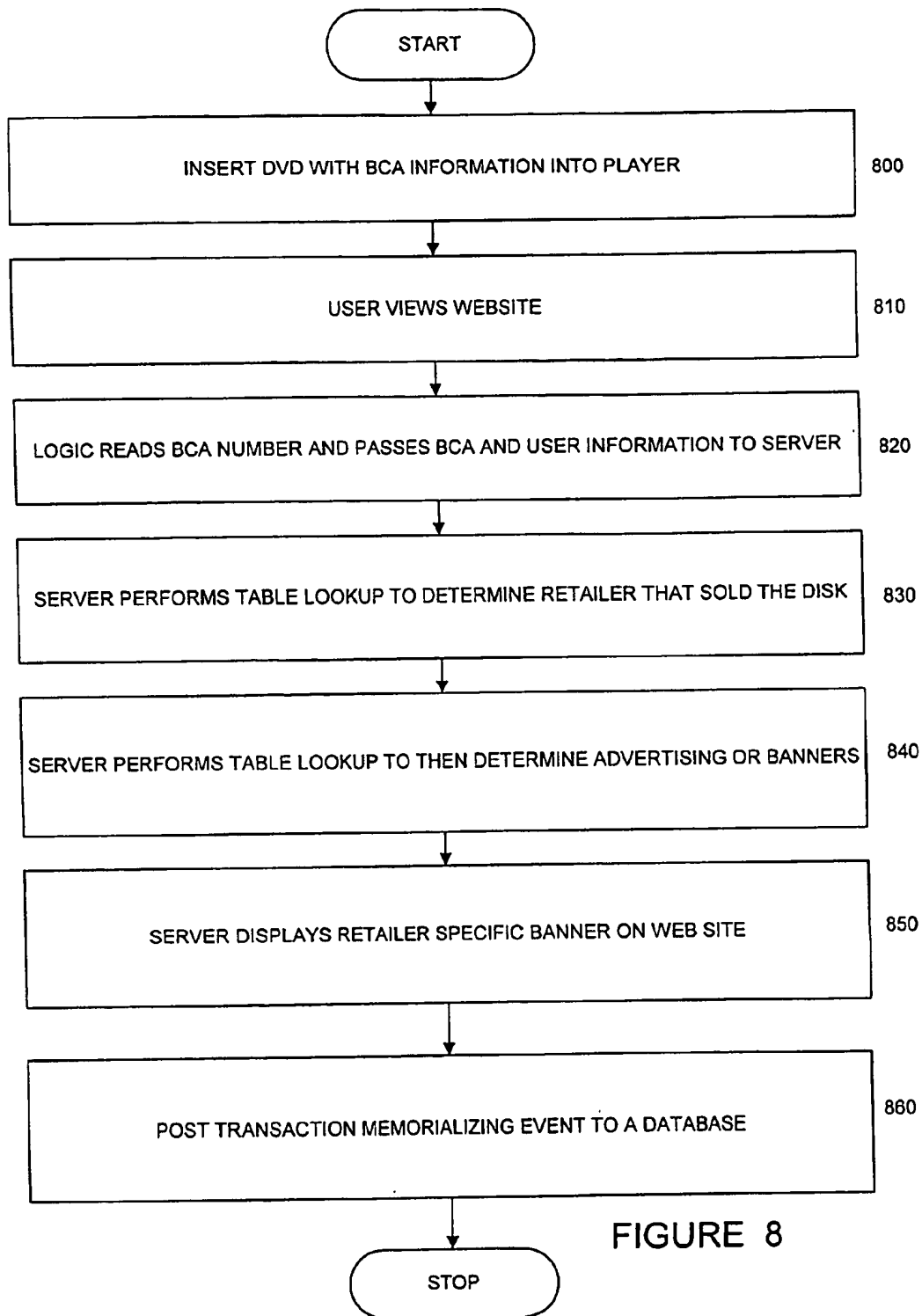


FIGURE 8

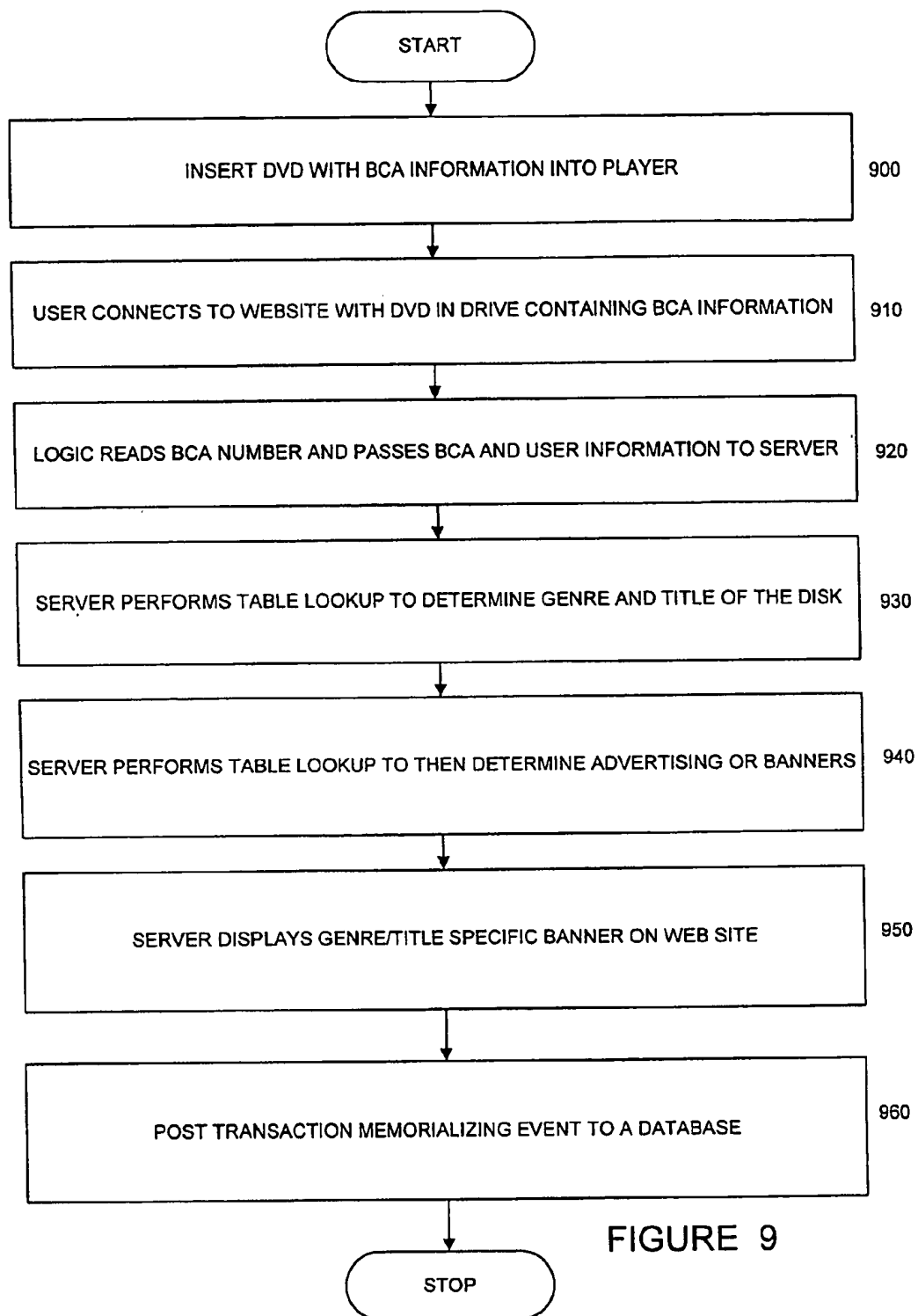


FIGURE 9

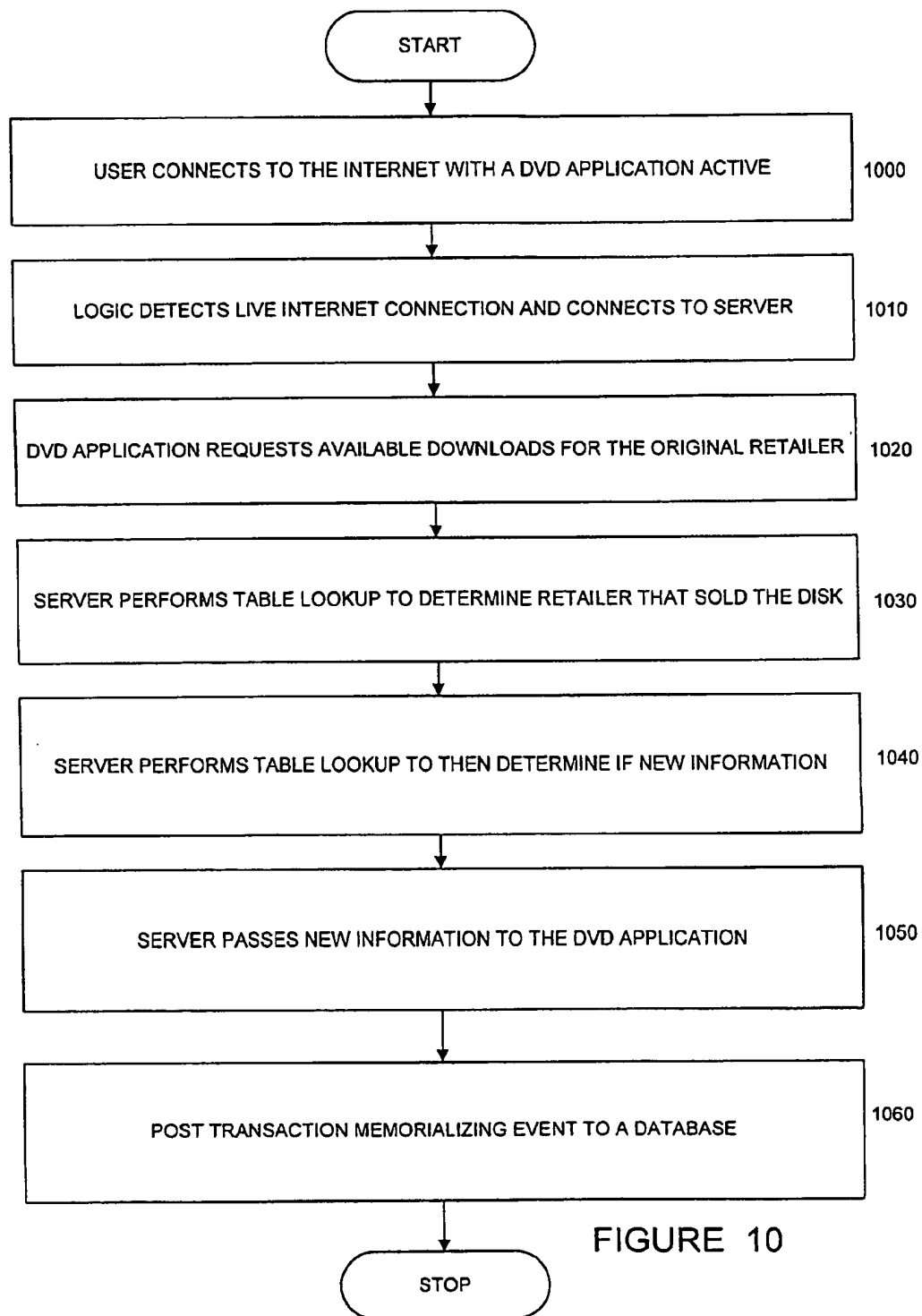


FIGURE 10

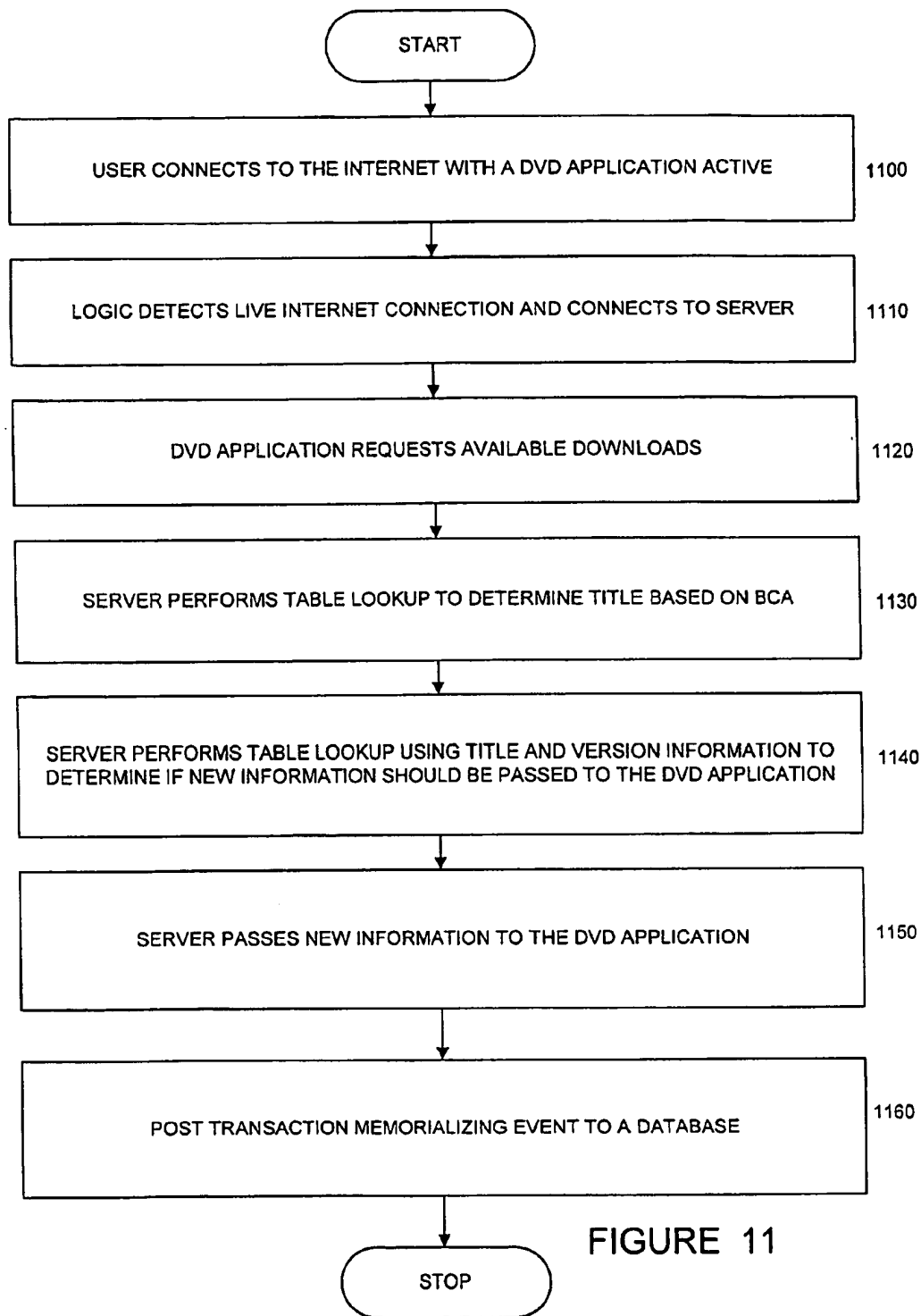


FIGURE 11

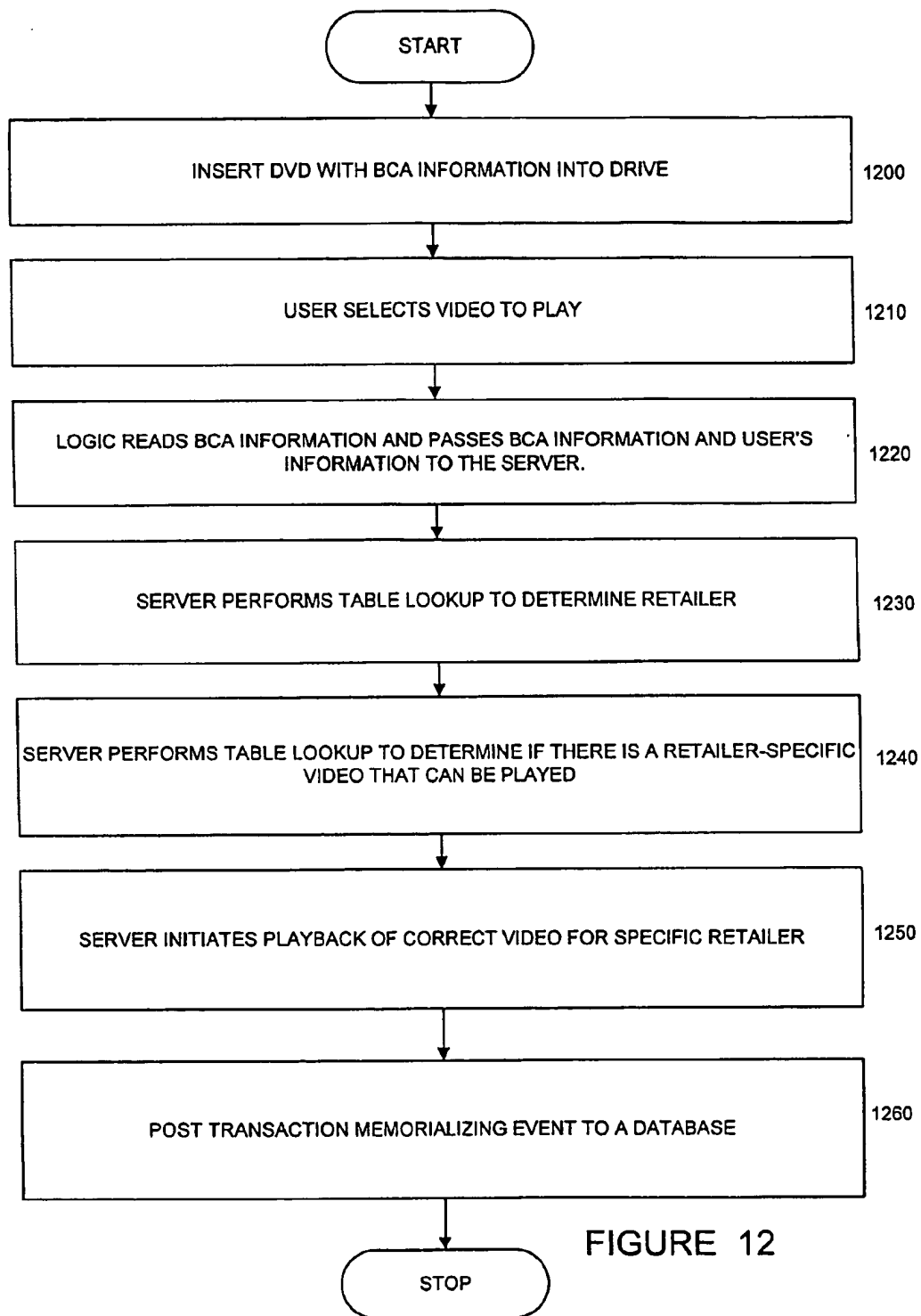


FIGURE 12

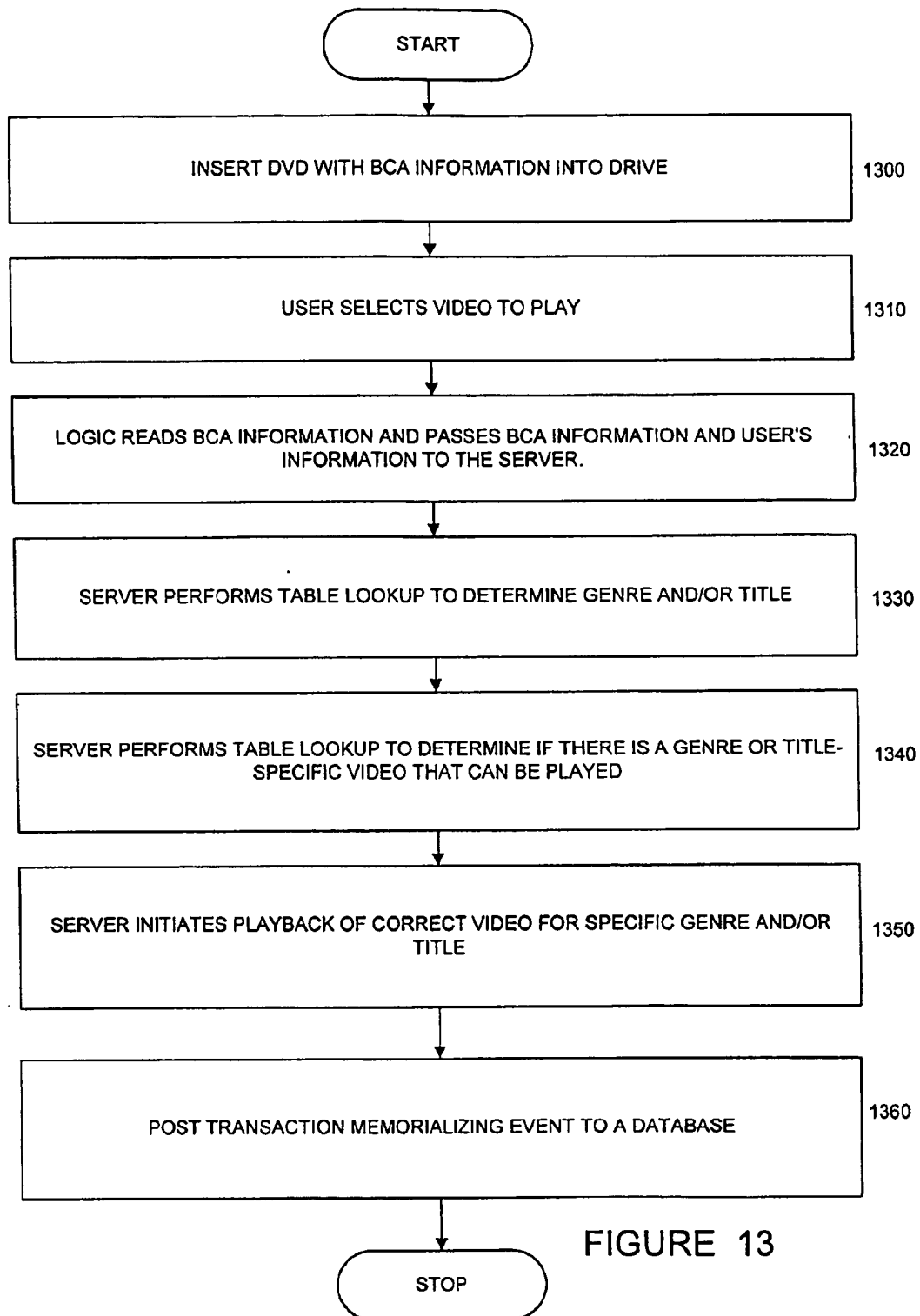
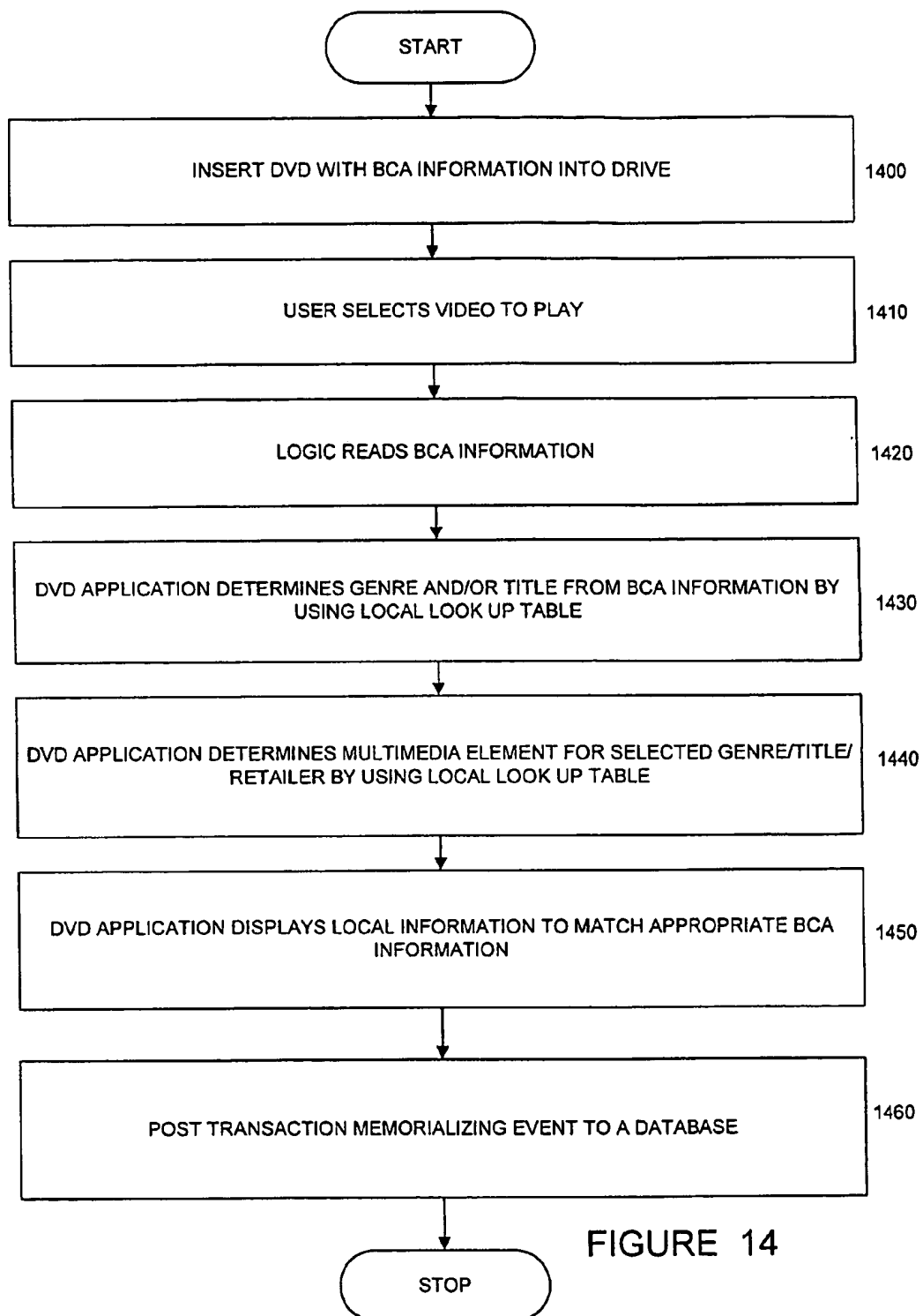


FIGURE 13





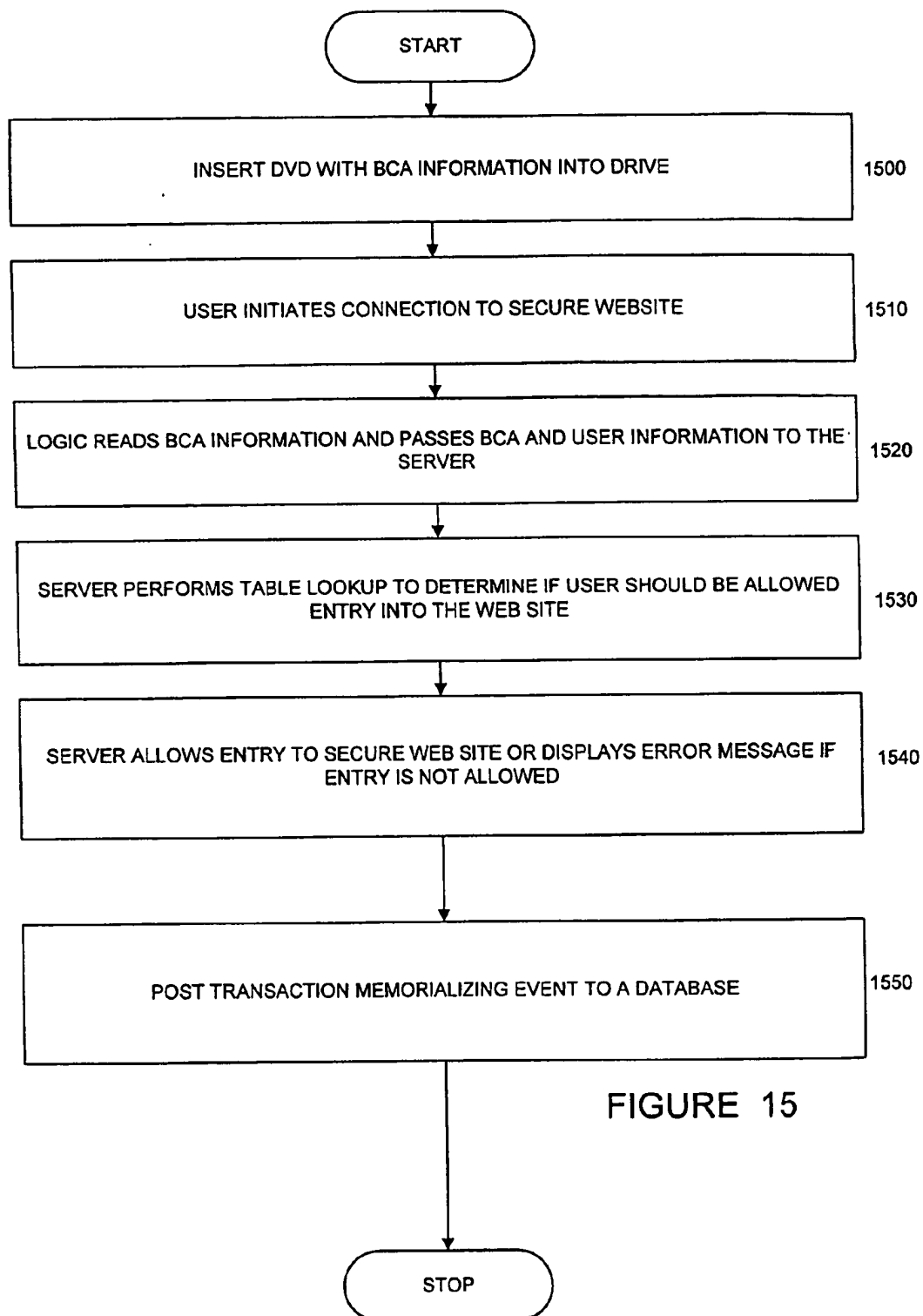


FIGURE 15

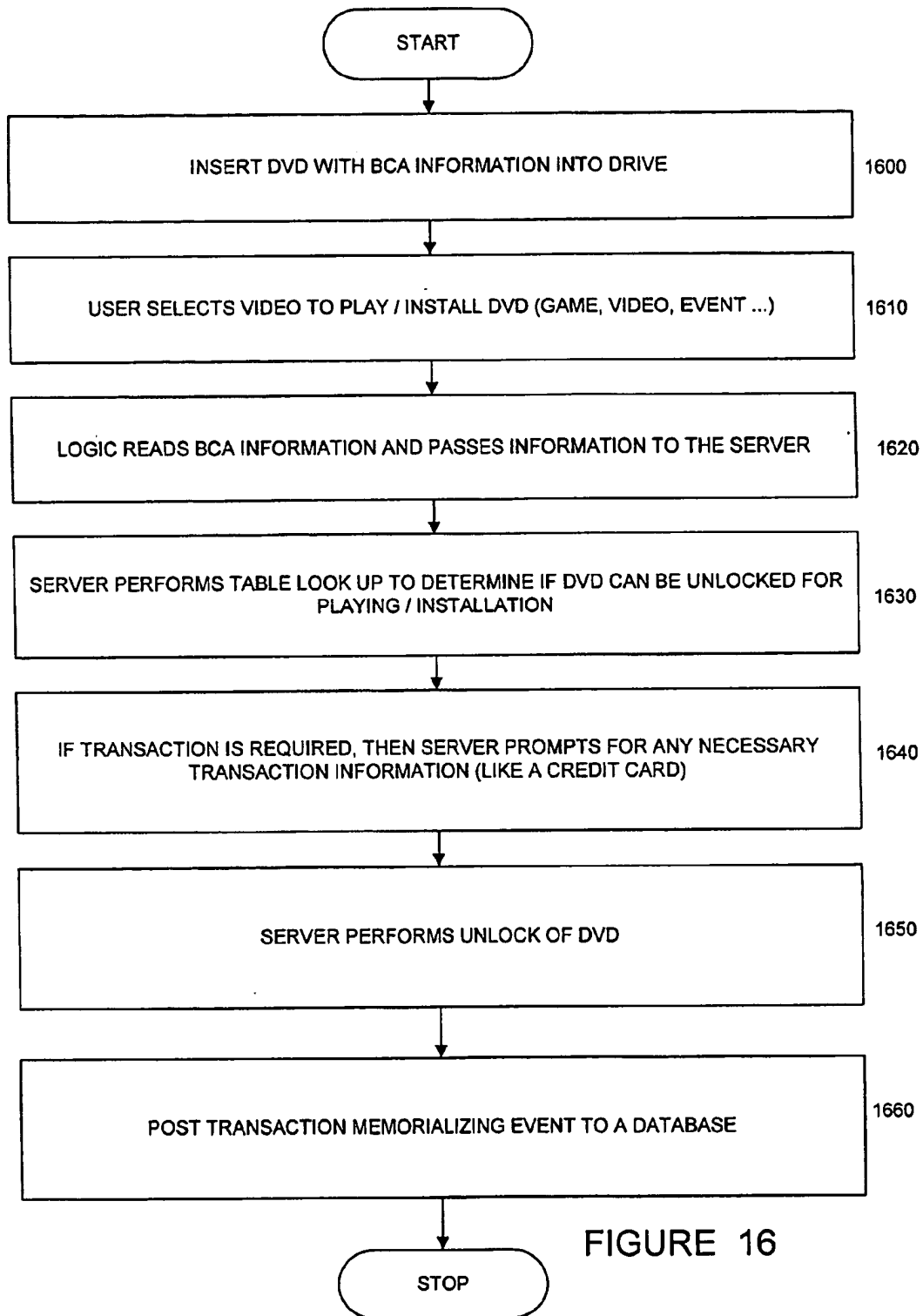


FIGURE 16

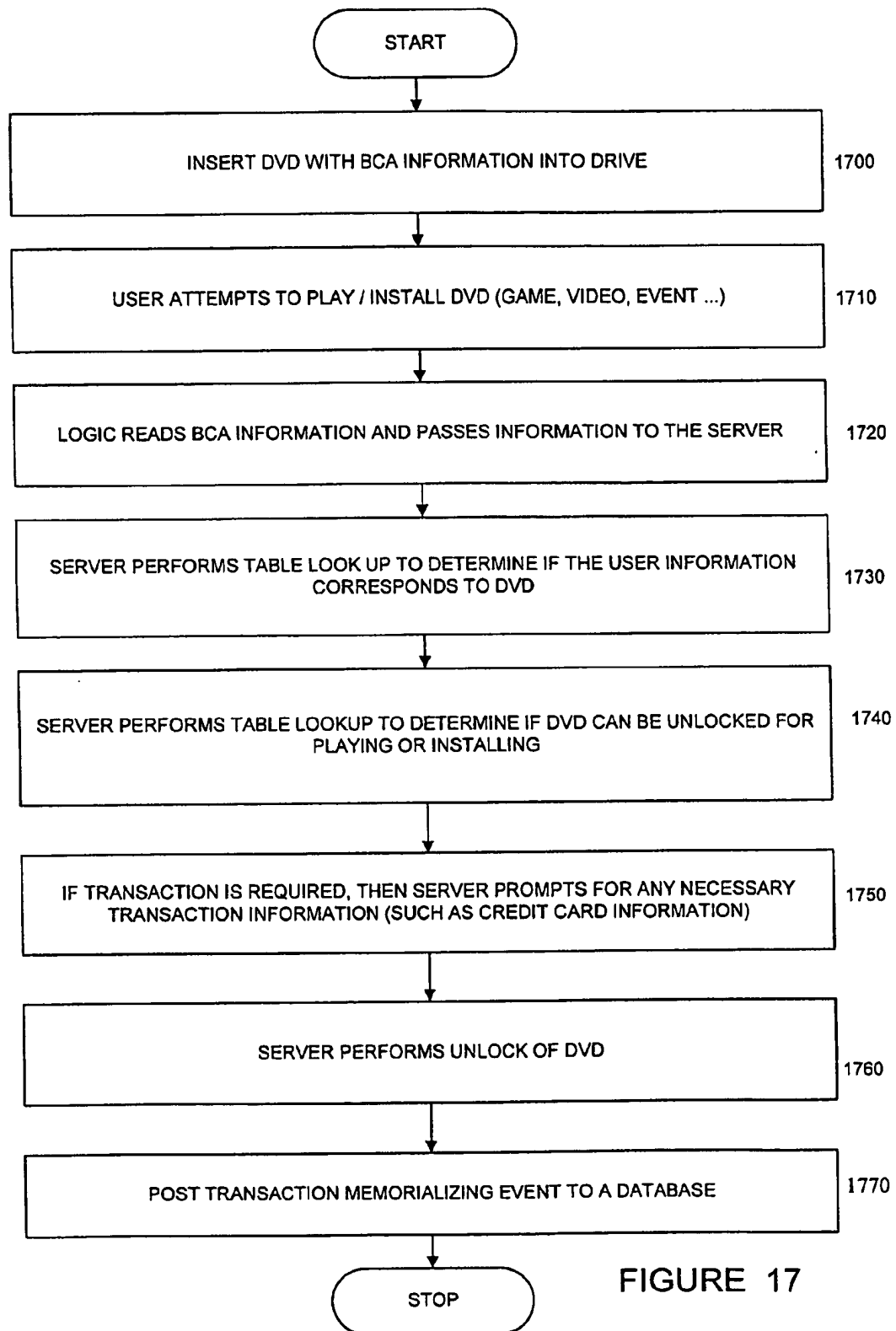
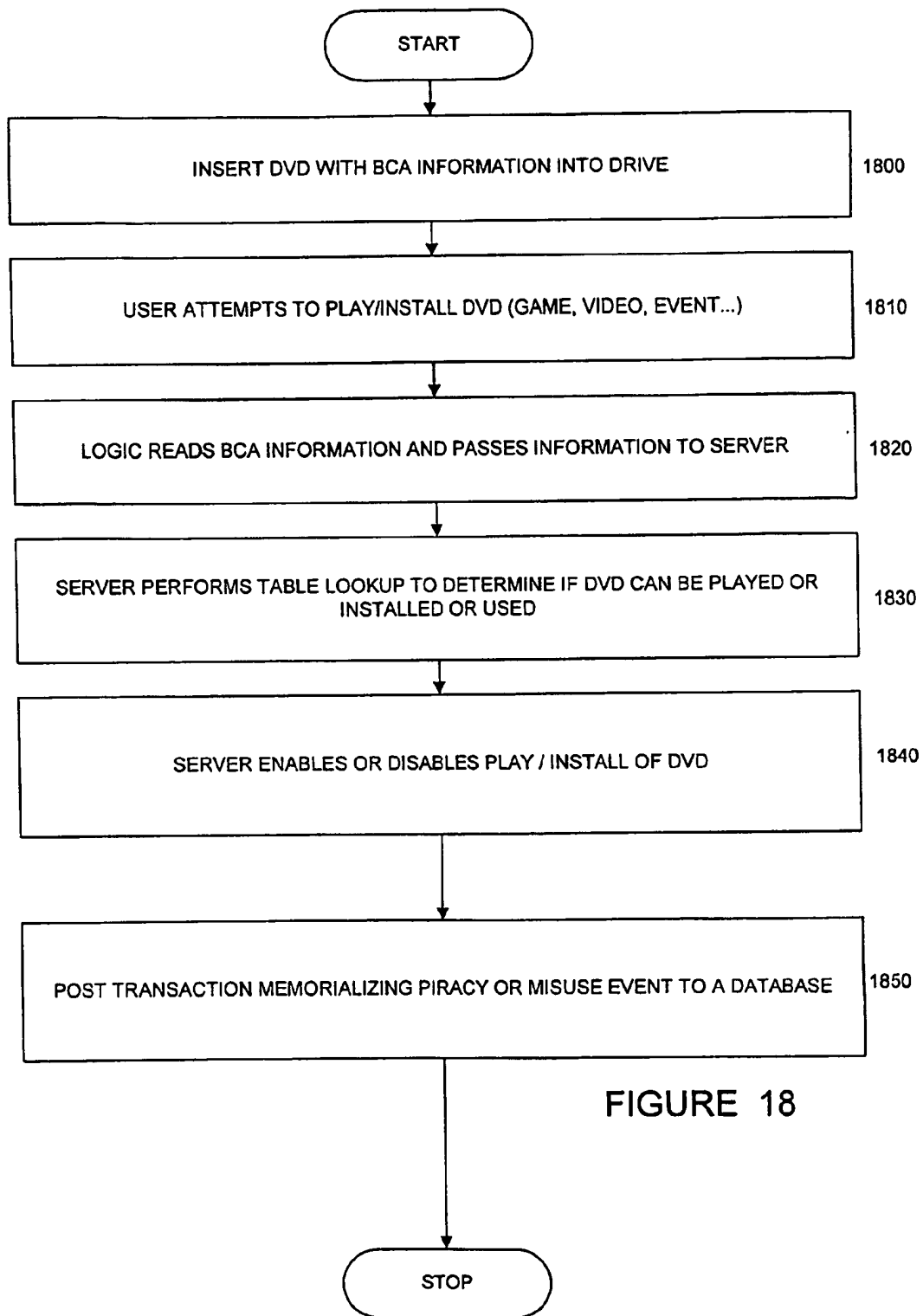


FIGURE 17



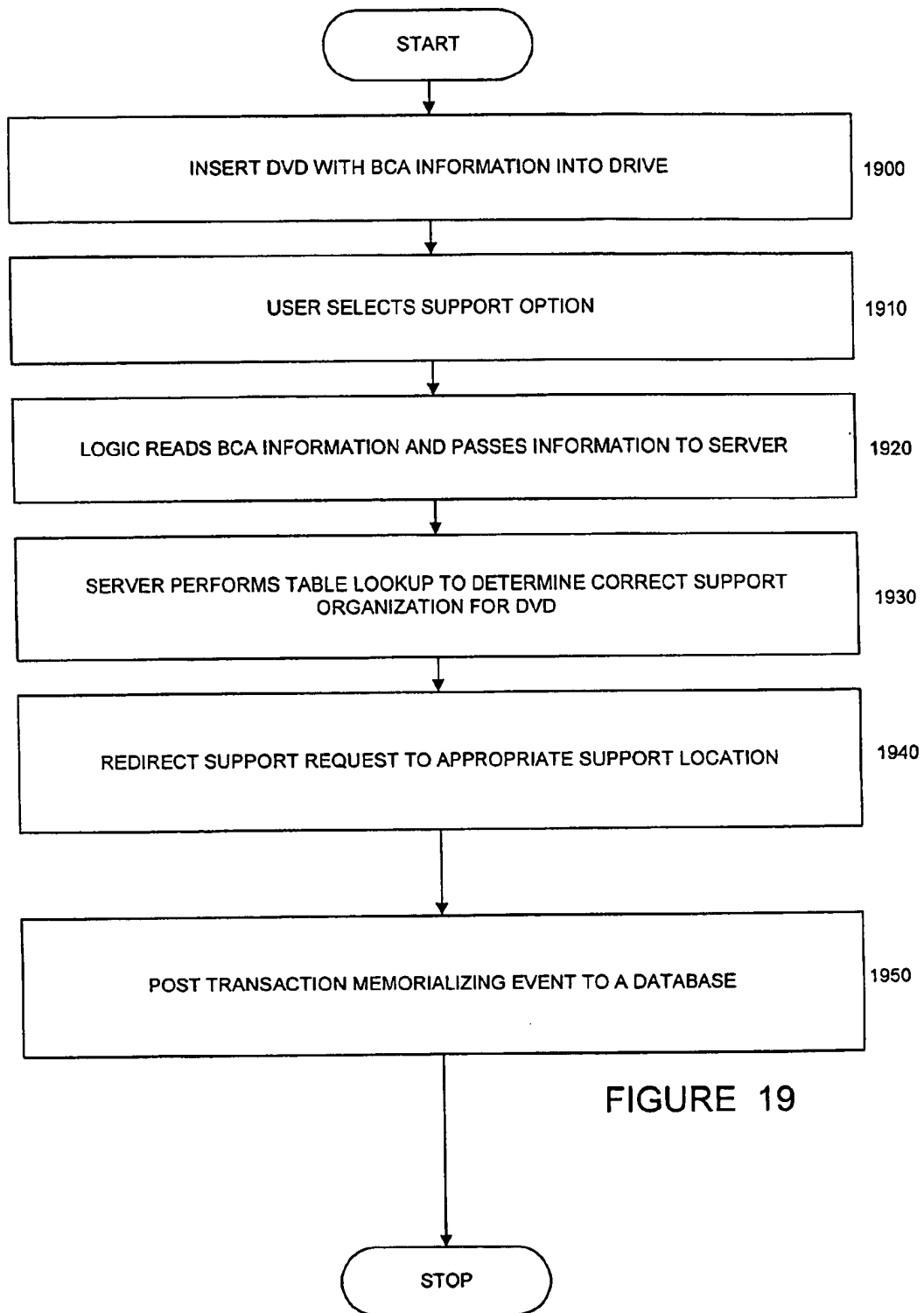


FIGURE 19

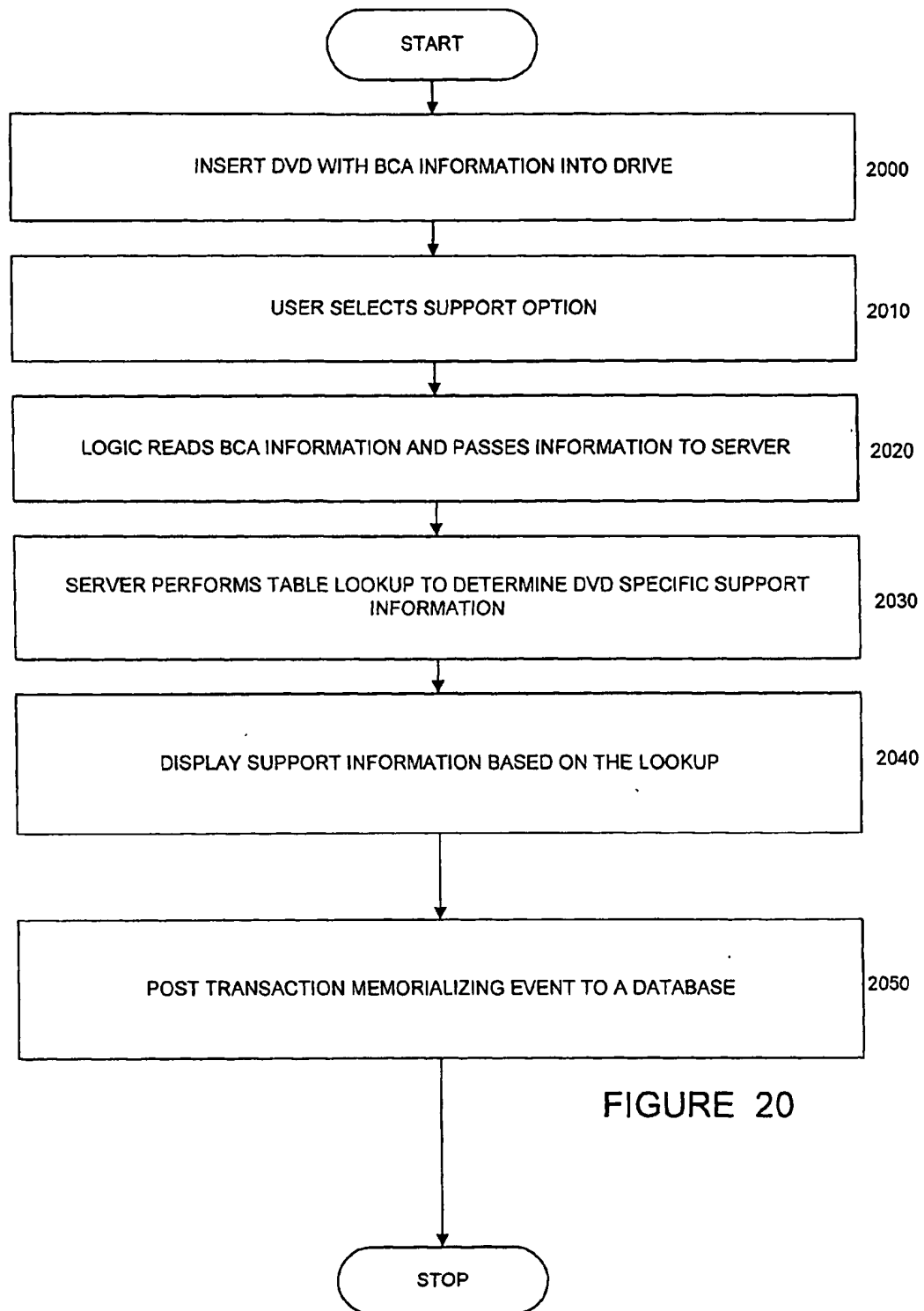


FIGURE 20

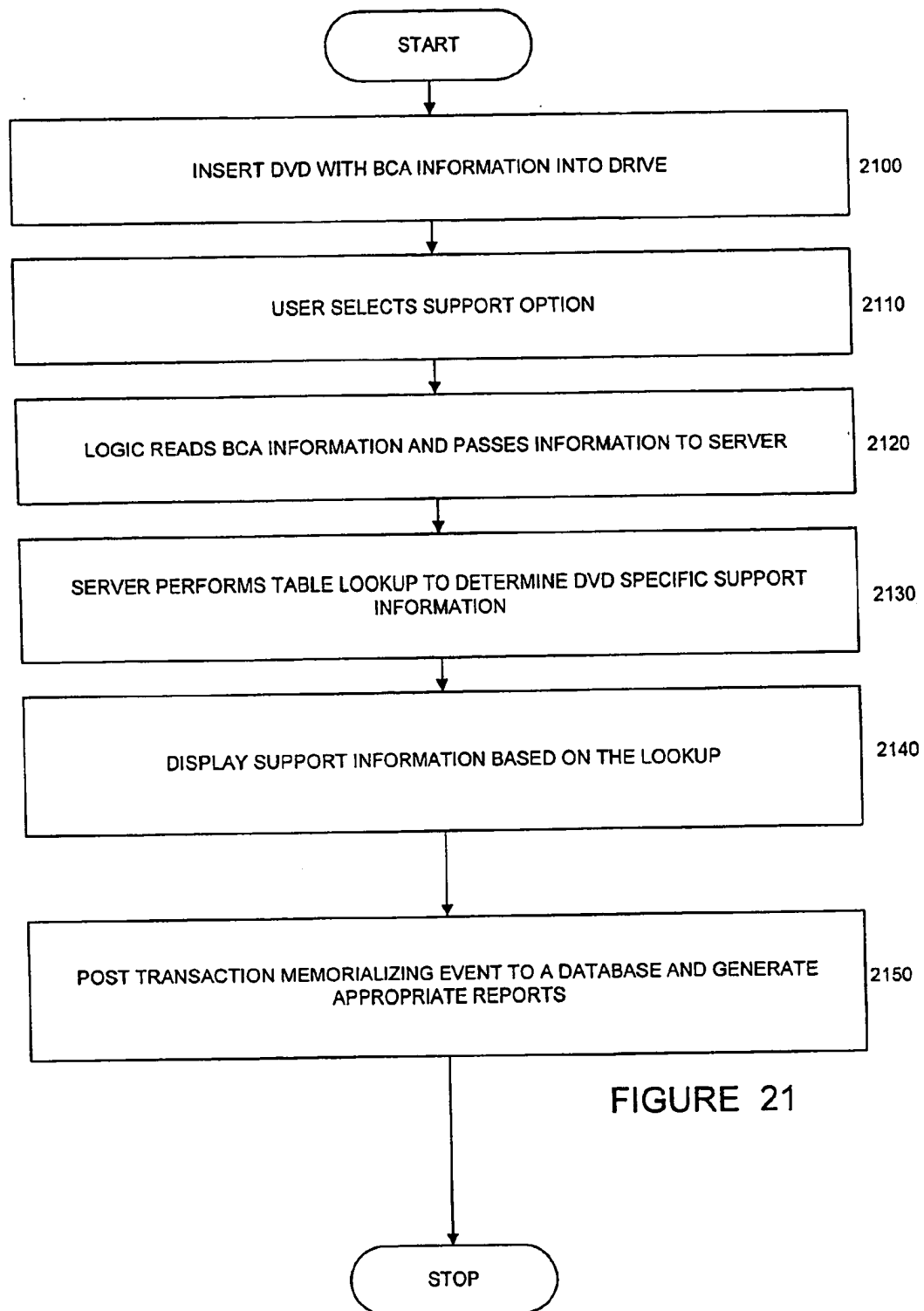


FIGURE 21



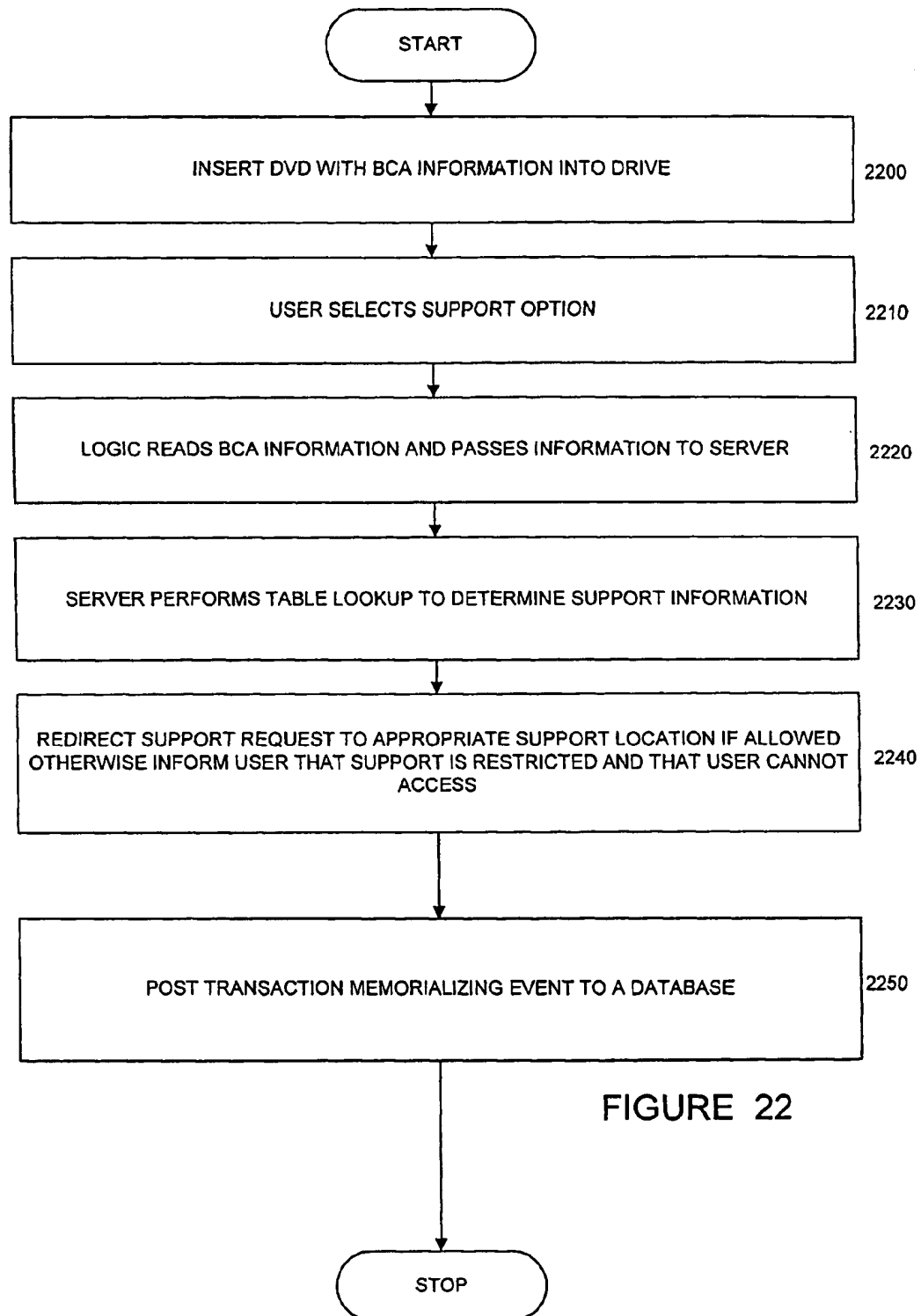


FIGURE 22

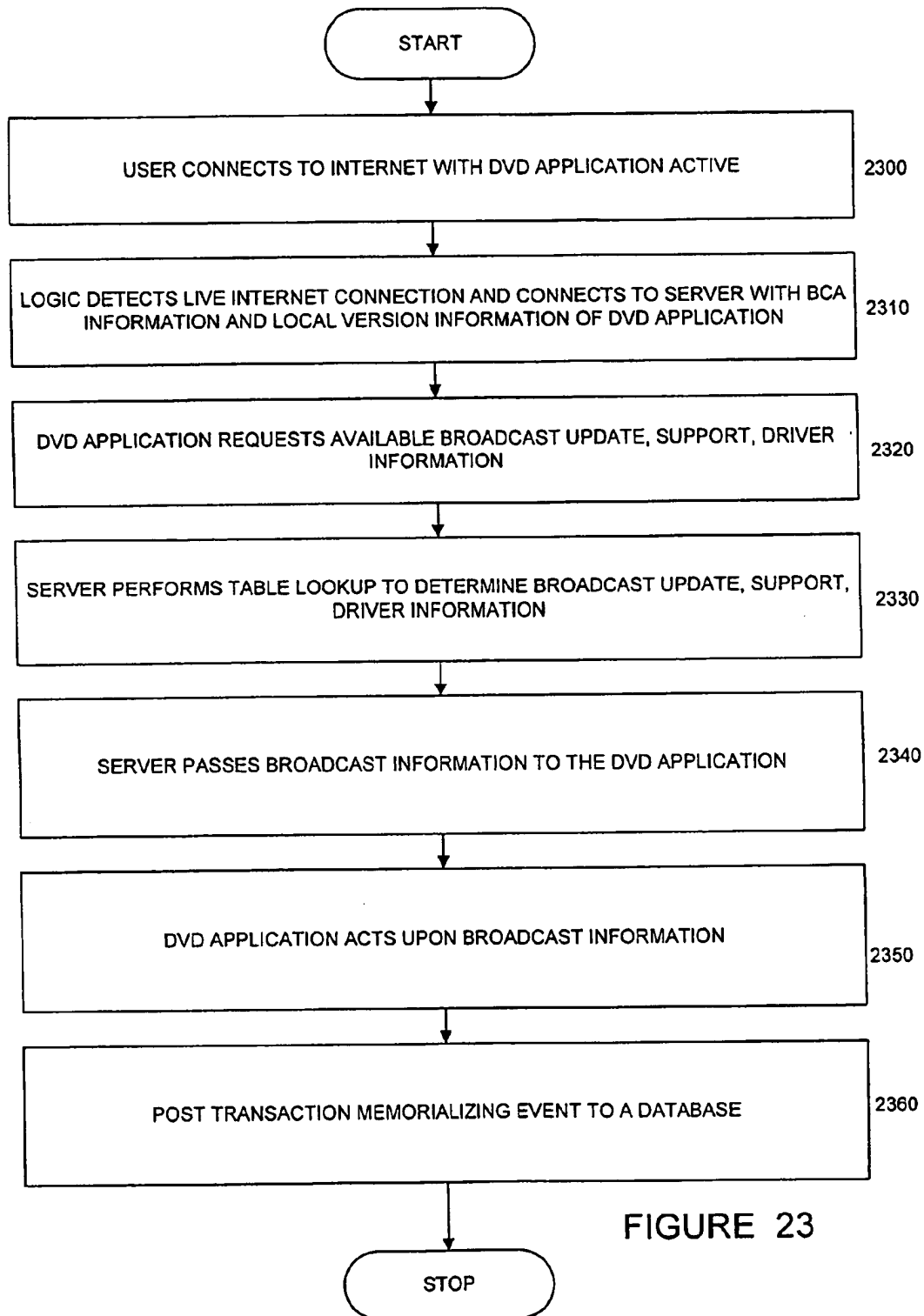
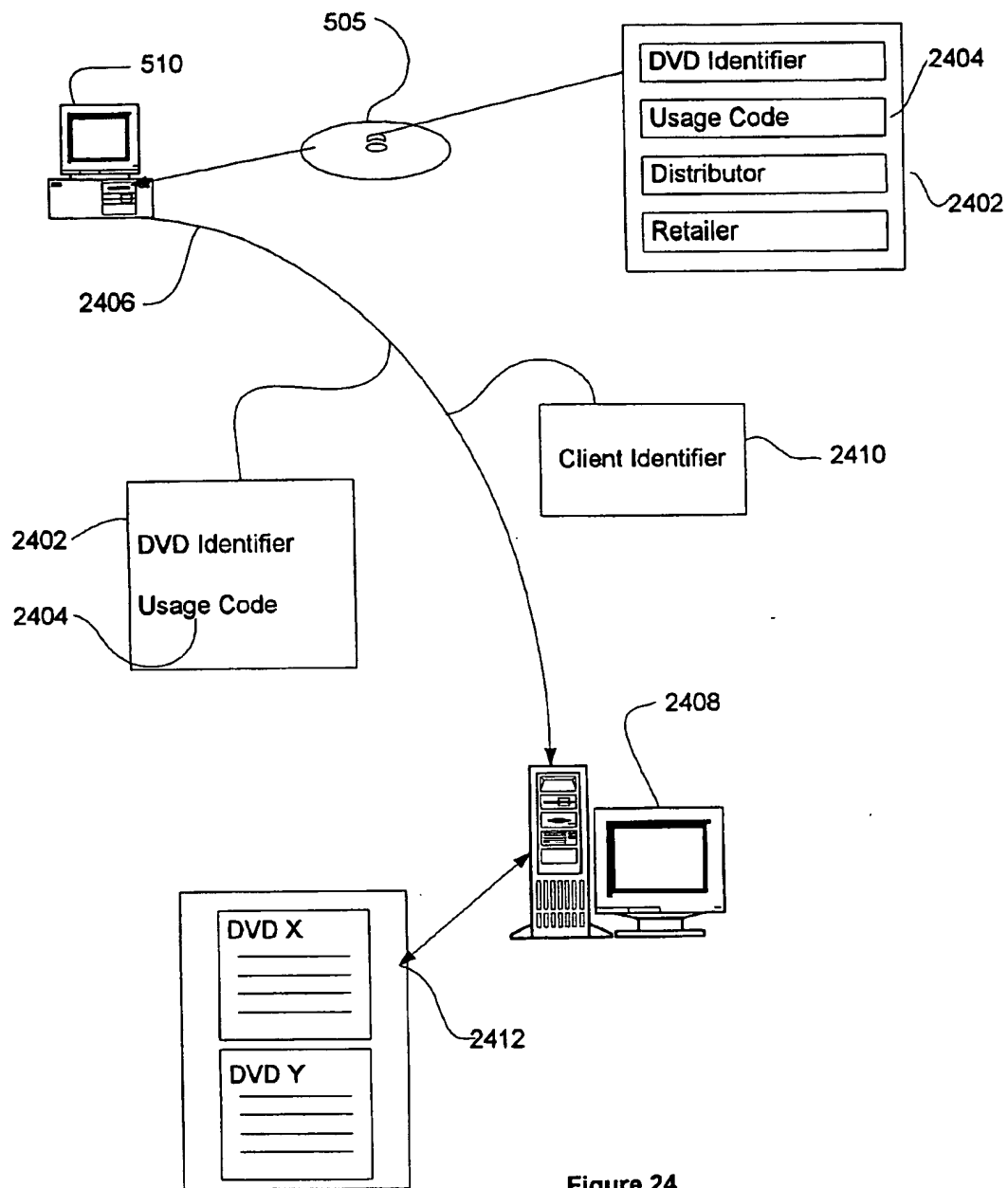


FIGURE 23



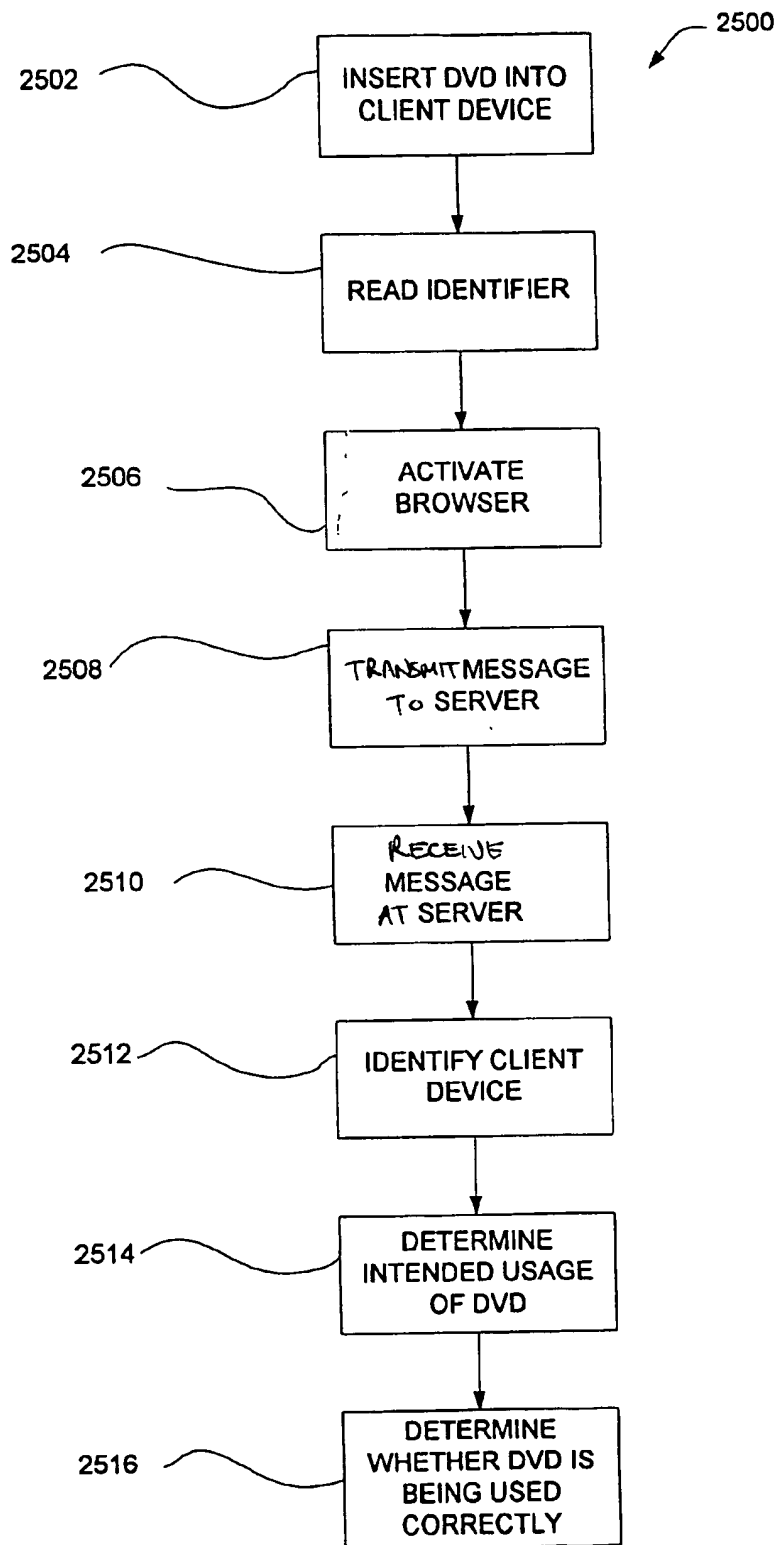


Figure 25

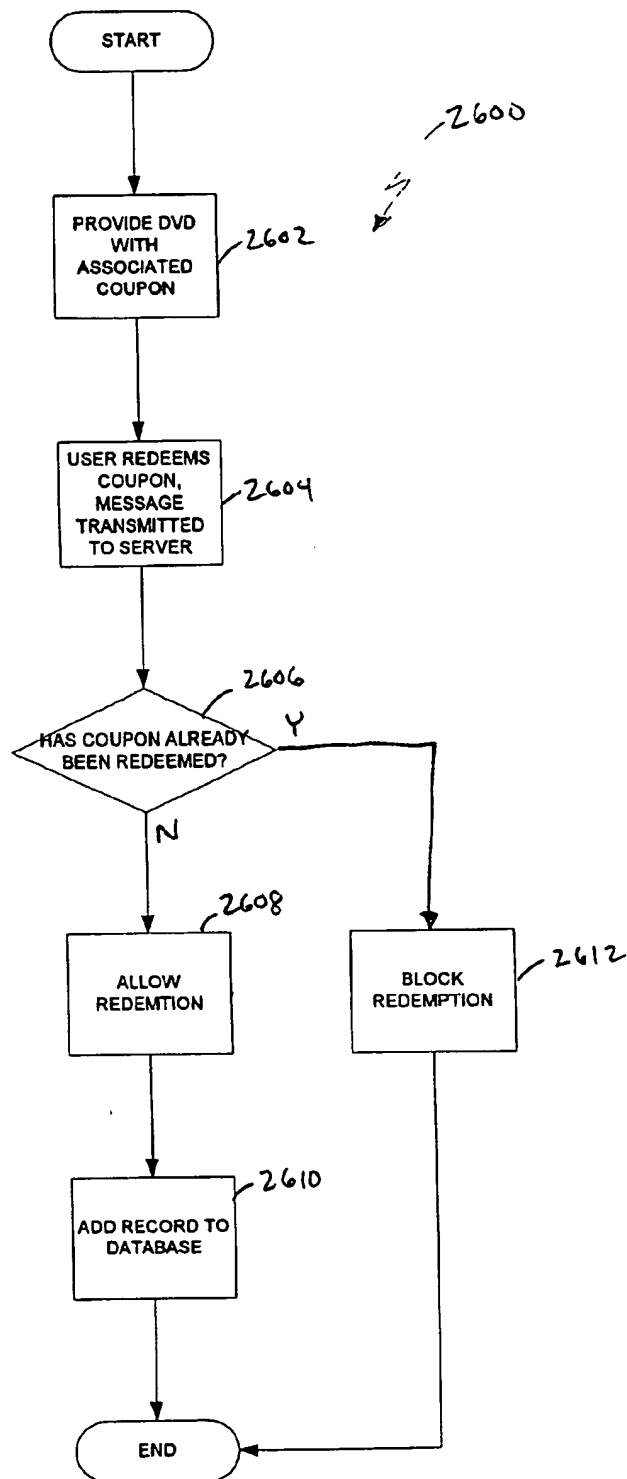


FIGURE 26

# SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR IDENTIFYING AND TRACKING USAGE OF A LASER-CENTRIC MEDIUM

[0001] This patent document claims priority to Provisional Patent Application No. 60/220,400 under 35 U.S.C. 119(e).

## RELATED INVENTIONS

[0002] The following pending applications are incorporated herein by reference: 09/296,202, filed Apr. 21, 1999, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR INTERACTIVE, NETWORK SUPPORT OF INFORMATION BASED ON THE ELECTRONIC CONTENT OF A LASER-CENTRIC MEDIUM; 09/296,098, filed Apr. 21, 1999, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR AUTHORIZING THE USE OF ELECTRONIC CONTENT UTILIZING A LASER-CENTRIC MEDIUM; 09/295,688, filed Apr. 21, 1999, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR TARGETTED ADVERTISE-MENT BASED ON THE ELECTRONIC CONTENT OF A LASER-CENTRIC MEDIUM; 09/295,964, filed Apr. 21, 1999, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR AUTHORIZING THE USE OF ELECTRONIC CONTENT UTILIZING A LASER-CENTRIC MEDIUM AND A NETWORK SERVER; 09/295,856, filed Apr. 21, 1999, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR TARGETTED UPDATE OF INFORMATION BASED ON THE ELECTRONIC CONTENT OF A LASER-CENTRIC MEDIUM; 09/295,689, filed Apr. 21, 1999, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR TRACKING THE DISTRIBUTION OF CONTENT ELECTRONICALLY UTILIZING A LASER-CENTRIC MEDIUM; and 09/295,826, filed Apr. 21, 1999, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR THE PURCHASE AND USE OF ELECTRONIC CONTENT UTILIZING A LASER CENTER MEDIUM.

## FIELD OF THE INVENTION

[0003] The present invention relates to a distribution and tracking system that utilizes a set of bits on an electronic medium to track and control the purchase and use of content electronically.

## BACKGROUND OF THE INVENTION

[0004] The now familiar compact disk preserves information as a series of microscopic pits and smooth areas, oriented in concentric circular or helical tracks, on the otherwise smooth, planar surface of an annular disk. Recorded information is read from a compact disk by directing a focused laser beam along the recorded tracks, and detecting variations in the intensity of the laser beam as it encounters the microscopic pits and smooth areas on the disk. The coherence and relatively short wavelength of laser radiation enables large volumes of information to be written onto very small spaces of a recording medium.

[0005] Compact disks were first introduced in the music recording industry in 1982, and now account for 43% of all recorded music sales. In the United States alone, over three hundred million compact disks are sold annually, with a

retail value of over three billion dollars, according to the Recording Industry Association of America. The recording industry has for the last ten years packaged the five inch in diameter prerecorded compact disks in six inch by twelve inch cardboard boxes known in the industry as "long boxes." The long box is easily propped up in display bins alongside traditional vinyl LPs in music store display bins. More importantly, however, the bulk of the long box makes it difficult for a shoplifter to hide a prerecorded compact disk under a coat or in a purse and walk out of a music store without paying. While the long box packaging technique for prerecorded compact disks has been somewhat effective as an anti-theft device, the excess packaging it creates accounts for as much as twenty five million pounds of packaging waste annually.

[0006] The Recording Industry Association of America accordingly announced in 1991 its intention to abandon the long box. In February of 1992, the Association announced that, beginning in April 1993, all prerecorded compact disks would be marketed in five inch by five and one half inch packages.

[0007] When Compact Discs (CD)s or Digital Video or Versatile Disks (DVD)s are manufactured, they are frequently transported and stored on spindles. This is at least in part due to the fragile nature of the storage medium. Since each disk has a center hole, is relatively thin and is relatively light, storage of multiple discs on a spindle is convenient. Spindles, as used in the manufacture of disks, typically have a central post about two feet long and weighted base about two inches thick. Depending upon the level of automation of the disk manufacturing process, disks may be stored or carried on spindles several times before printing or packaging. In the most fully automated processes, disks are only kept on spindles between the inspection and printing steps and just prior to final packaging. In more manual systems, disks may be placed on spindles between every manufacturing step including between molding and metalizing, between metalizing and spin coating, between spin coating and inspection, between inspection and printing, and between printing and final packaging. However, regardless of the number of times the disks are maintained on spindles, each such time the disk is removed for processing, a possibility of theft and confusion as to title exists. In other words, whenever a disk is on a spindle, particularly without any identifying printing, the identification of the title on that spindle may easily be called into question or be confused. It is essential that a capability be built into a disk to track the disk and provide distribution management, quality control and customer access information.

[0008] Similarly, whenever disks are maintained on a spindle for any length of time, theft can occur. Without any means of preventing unauthorized removal of disks from the spindle or tracking exactly how many disks were on the spindle, thefts regularly happen.

[0009] The merchandising of compact disc (hereinafter "CD") multimedia is a growing industry. CD multimedia are used in audio, video, audio-video, and computer based applications. Since many similar looking duplicate recordings for a particular CD program are often available from many different sources, it is difficult for merchants to track, identify, and distinguish their inventory from the inventory of others.

[0010] Security is an important concern associated with the rental, loan, or sale of such merchandise. Items such as commercially prerecorded compact disc programs are available from rental shops, stores, and libraries. It is important for a merchant to have a simple means to secure and identify its merchandise. For example, a merchant needs to determine whether merchandise which was rented from it is the same merchandise that is being returned to it to deter customers from attempting to switch good rented merchandise with bad return merchandise (such as a customer's scratched disc).

[0011] The switching of CDs in good condition with defective CDs obtained from other sources is a difficult problem that merchants face. Merchandise switching is a significant problem given the high volume of business involved in the compact disc industry and the difficulty of detecting such illegal switching. An easy and reliable way for a merchant to determine whether the digital data contained on a CD is damaged or defective is required. Although obvious imperfections such as scratches or cracks may be detected by a simple visual inspection, such inspection cannot detect defects in the digital data. Even though defects may be discovered during regular speed playback of an entire CD, such means is commercially impractical since it requires too much time for merchants dealing in high volume to check every CD returned to them. Although high-speed electronic scanning devices for checking digital recordings currently exist, such devices are effectively unavailable to the individual merchant due to cost prohibitions and the limited availability of such technology.

[0012] Electronic article surveillance systems for monitoring the egress of sensitive objects from controlled spaces are well known, and have been used alone and along with the long box packaging technique for controlling the unauthorized taking of compact disks. Markers formed from a piece of high permeability magnetic material can be placed on the packaging for the disk. Spaced apart detection panels are then placed across the access points to the store, library or other repository for the monitored compact disks. The panels include field coils and detector coils for producing a magnetic field across the access point that can detect the passage of a marker between the panels. If a person attempts to carry a compact disk through the magnetic field presented by the panels without first deactivating the marker on the disk packaging, the presence of the marker will be detected and an alarm initiated.

[0013] U.S. Pat. No. 4,710,754 discloses a multi-directional EAS marker especially designed for its compact dimensions. The marker disclosed in the '754 patent is comprised of a high permeability, low coercive force, generally planar magnetic responder material that includes at least two narrow regions defining switching sections, and adjacent, wider, flux collector sections. The juxtaposition of the narrow switching sections with the flux collector sections causes the flux to be highly concentrated in the switching sections. The high concentration of flux lines in the switching sections produces high frequency harmonics when passed through an alternating magnetic field, allowing the presence of the marker in the field to be detected. The marker is conveniently made dual status, i.e., reversibly deactivatable and reactivatable, by including a piece of magnetizable material adjacent each of the switching sections. The magnetizable material, when magnetized, biases

the adjacent switching section to either keep the magnetization therein from reversing when in an alternating interrogation field, or at least altering the response of the marker in the field. In either case, readily distinguishably different signals are produced by the marker in an interrogation field depending on whether the magnetizable material is magnetized or demagnetized.

[0014] U.S. Pat. No. 4,967,185 discloses a multi-directional, dual-status EAS marker also designed for its compact dimensions. The marker disclosed in the '185 patent discloses a marker that includes a continuous uninterrupted sheet of permanently magnetizable material overlying a sheet of responder material similar to that disclosed in the '754 patent. The response of the marker within an alternating magnetic field can be discernibly altered by selectively magnetizing and demagnetizing the continuous sheet of permanently magnetizable material prior to introducing the marker into the field. The markers disclosed in the above noted prior art can be attached to the packaging for a compact disk. Problems arise, however, when attempting to attach prior art markers directly to the surface of a compact disk. Rotation of the compact disk is required to read information from the disk, and the disk must accordingly be inherently balanced. An EAS marker, applied directly to a compact disk, therefore, would preferably be somehow concentrically mounted on the disk without imbalancing the disk. Prior art EAS markers, however, are not inherently balanced. Moreover, conventional compact disks include a centered aperture that must be maintained clear of obstructions, and the preferred prior art dual status EAS markers include a continuous sheet of magnetic material, such that the marker cannot be concentrically mounted to the surface of a compact disk without obstructing the disk aperture.

[0015] U.S. Pat. No. 4,709,813 proposed an anti-theft device for compact disks that overcame the inability to directly apply an EAS marker to the surface of a compact disk. The '813 patent discloses a detachable locking plate with an EAS marker carried on the internal face of the plate that can be selectively locked to the "jewelry box" for a compact disk. The compact disk is physically locked in the box leg by the plate. A clerk or other authorized person can remove the plate with the use of a keyed release tool at the time of payment. It will be appreciated that the use of a locking plate requires preparation time to attach a plate to each compact disk cartridge, adds an additional step in the check-out process, and leaves the compact disk without EAS protection once the EAS marker carrying plate is removed from the compact disk. The lack of EAS protection once the plate is removed makes it especially risky for a retailer to permit the trial playing of a compact disk by a customer in the store before the compact disk is purchased. The new packaging standard for prerecorded compact disks, while environmentally sound, will exacerbate the problem of compact disk shop lifting, since the smaller packages will be easier to hide and transport out of a store.

[0016] While the use of electronic article surveillance systems could partially compensate for the increased shoplifting threat, it will be appreciated that the unauthorized removal of the magnetic markers from a package will defeat the detection capability of the surveillance system, and known EAS markers cannot be directly mounted on a compact disk without affecting the operability of the disk. The use of an EAS marker in conjunction with a locking

plate presents handling problems and does not solve the problem of physical security of compact disks at stores where the customer is allowed to listen to the compact disk prior to purchase. A new, compact optical information disk especially designed for tamper-proof use with an electronic article surveillance system through the use of an EAS marker that could be applied directly to the surface of the compact disk would accordingly provide decided advantages. Thus, there is a need for merchants to conveniently and inexpensively maintain the security of their electronic content medium.

#### SUMMARY OF THE INVENTION

[0017] The present invention provides a system, method and apparatus for tracking usage of a recording medium based on an identifier stored on the recording medium. An indicia corresponding to the identifier of the recording medium is received from a client device upon the recording medium being input into the client device by a user. An indicia identifying the client is received from the client device. A characteristic of the storage medium is identified based upon the received indicia corresponding to the identifier. Then, the client device is identified based upon the received indicia identifying the client device. The characteristic of the recording medium and the identity of the client device are then stored in a database.

[0018] In an aspect of the invention the characteristic of the recording medium can include an intended usage. In yet another aspect of the invention the characteristic of the recording medium may include the recording medium being intended either for rental or for retail sale. In still another aspect of A method for tracking data as recited wherein the characteristic of the recording medium includes the characteristic that the recording medium is a retail-sale video, the method further including the step of monitoring the database to determine whether the retail-sale recording medium is being operated on multiple client devices.

[0019] In an embodiment of the invention a retailer from whom the user obtained the recording medium can be determined based upon the identifier. In another embodiment of the invention, a marketing message that incents the client to further patronize the retailer can be transmitted to the client device. In yet another embodiment of the invention, the merchant from whom the customer obtained the recording medium can be determined, a merchant most suited to the user can then be selected from a database of preferred merchants based upon the determination of where the recording medium was obtained, and the user can be directed to the selected merchant.

[0020] In still another embodiment of the invention the client device can be used to read the identifier, and the indicia corresponding to the identifier can be transmitted from the client device to a server via the Internet utilizing a browser on the client device. In still yet another embodiment of the invention the manner in which the recording medium is being used by the client device can be determined based upon the client identity and the recording medium characteristic.

[0021] In still another embodiment of the invention, the identifier can be stored in a database of other identifiers. An identifier can then be selected at random and a prize is issued, in lottery fashion to a person associated with the

identifier (e.g. the retail purchaser). In yet another embodiment of the invention, a coupon associated with the recording medium can be generated. Then, when the coupon is redeemed, such redemption can be determined. Upon determining that the coupon has been redeemed, the coupon can be disabled, thereby limiting the number of times the coupon can be redeemed.

[0022] In still yet another embodiment of the invention, the determined characteristic of the recording medium can be that it has been rented to the client. Play of the recording medium can then be limited to the identified client device, thereby preventing a rented recording medium from being used by multiple non-renting users. In yet still another embodiment of the invention the recording medium may have been rented for a limited number of plays. The number of times the recording medium has been played can be monitored, and play can be disallowed upon determination that the recording medium has been played the allocated number of times. In another embodiment of the invention, play of the recording medium can be disallowed upon a determination that the recording medium has been stolen. These and other advantages of the present invention will become apparent to those skilled in the art upon a reading of the following descriptions of the invention and a study of the several figures of the drawings.

#### DESCRIPTION OF THE DRAWINGS

[0023] The foregoing and other objects, aspects and advantages are better understood from the following detailed description of a preferred embodiment of the invention with reference to the drawings, in which:

[0024] FIG. 1 is a general block diagram of the method of tracking an electronic medium in accordance with the present invention;

[0025] FIG. 2 is a detailed block diagram of the method of tracking the electronic medium in accordance with a preferred embodiment;

[0026] FIG. 3 is a block diagram of an embodiment of the hardware involved with one embodiment of the present invention;

[0027] FIG. 4 is a pictorial representation of a comparison of the prior lifecycle of electronic storage medium and the electronic storage medium of the present invention;

[0028] FIG. 5 is a block diagram of a user experience in accordance with a preferred embodiment;

[0029] FIG. 6 is a flowchart of a redirect operation for an electronic commerce transaction in accordance with a preferred embodiment;

[0030] FIG. 7A and 7B are flowcharts setting forth the detailed logic associated with user connection and update for DVD processing in accordance with a preferred embodiment;

[0031] FIG. 8 presents logic demonstrating the display of specific advertising information based on a retailer/distributor utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0032] FIG. 9 is a flowchart demonstrating the display of specific advertising information based on genre/type of



DVD utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0033] FIG. 10 is a flowchart of a download operation for downloading and updating retailer-specific information of the DVD utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0034] FIG. 11 is a flowchart of a download operation for downloading and updating DVD title-specific information utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0035] FIG. 12 is a flowchart of a tailored video viewing operation utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0036] FIG. 13 is a flowchart of a tailored video viewing operation utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0037] FIG. 14 is a flowchart of the logic associated with a tailored multimedia viewing operation utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0038] FIG. 15 is a flowchart of a security operation for restricting access to specific web sites utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0039] FIG. 16 is a flowchart of a unlock operation for an electronic commerce transaction utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0040] FIG. 17 is a flowchart of an unlocking operation for an electronic commerce transaction utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0041] FIG. 18 is a flowchart of a logging operation for tracking piracy and misuse of a DVD utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0042] FIG. 19 is a flowchart of a redirect operation for a support transaction for intelligent processing in accordance with a preferred embodiment;

[0043] FIG. 20 is a flowchart of a display operation for a support transaction for intelligent processing in accordance with a preferred embodiment;

[0044] FIG. 21 is a flowchart of support tracking utilizing BCA for intelligent processing in accordance with a preferred embodiment;

[0045] FIG. 22 is a flowchart of a redirect operation for a support transaction for intelligent processing in accordance with a preferred embodiment;

[0046] FIG. 23 is a flowchart of a broadcast operation for downloading update, support and application information utilizing BCA information for intelligent processing in accordance with a preferred embodiment;

[0047] FIG. 24 is a block diagram of a method of tracking usage of a recording medium according to an embodiment of the invention; and

[0048] FIG. 25 is a flowchart of a usage tracking operation according to an embodiment of the invention.

## DETAILED DESCRIPTION

[0049] The present invention includes a system, method and article of manufacture for tracking the distribution of content electronically and providing intelligent services based on this information FIG. 1 is a general block diagram of the method of tracking an electronic medium in accordance with the present invention. Initially, content in the form of music, video, data, or any other type of visual or audible entertainment or information is generated in operations 10 and 12. Thereafter, an electronic storage medium tracking identifier, such as the Burst Cut Area (BCA) is incorporated onto an electronic storage medium 22 at the time of manufacture. It should be noted that the electronic storage medium 22 may take the form of any electronic/optic storage medium capable of storing content. In the present description, however, focus will remain on one embodiment of electronic storage medium, a DVD.

[0050] As shown in FIG. 1, after the generation of the content, the electronic storage medium may be replicated by a replicator in operation 14. Further, a package tracking identifier is incorporated onto a package in which the electronic storage medium is stored. Such tracking identifiers are then stored in a database.

[0051] In use, the electronic storage medium may be tracked from a distributor to a retailer and the consumer in steps 16, 18, and 20. This tracking is enabled by using the tracking identifier on the package 22 while the electronic storage medium is shipped between various entities such as the replicator, distributor, retailer, and consumer. Furthermore, when a final user obtains the electronic storage medium, the electronic storage medium may be identified using the tracking identifier on the electronic storage medium 22. As will become apparent hereinafter, various features may be afforded by identifying the electronic storage medium.

[0052] As mentioned earlier, the electronic storage medium may be tracked by using the tracking identifier on the package while the electronic storage medium is shipped between various entities such as a replicator, distributor, retailer, and consumer. Specifically, the replicator is the company that manufactures, or "presses", the DVD. The replicator receives a DLT (digital linear tape) from the content developer (studio such as New Line) and then creates a "glass master" of the DVD based on the data on the DLT. The glass master then becomes the master DVD from which all replicated DVDs are made. The replicator adds the BCA number to each DVD as part of the replication process and then "packages/boxes" the DVDs for distribution to a distributor or retailer.

[0053] The distributor, on the other hand, is the company that packages together multiple titles together for distribution to a retailer. The value of a distributor is that they maintain direct relationships and channels with the retailers, can maintain larger inventories of products—leveraging economies of scale not possible by smaller retailers. A retailer requests multiple products from the distributor (for example 20 copies of *Lost in Space*, 50 copies of *Ronin*, and 100 copies of *You've Got Mail*—all of which come from

different studios), then the distributor can “package” the variety of products together for distribution to the retailer.

[0054] Finally, the retailer is the company that sells product directly to consumer. Examples include “brick-and-mortar” stores such as Blockbuster Video, Hollywood Video, Best Buy, Good Guys, etc. Retailers also include online retailers such as DVDExpress, Amazoncom, and other e-commerce-oriented companies. Other groups are also joining the retailing opportunity, such as Nimbus who already offers both replication and distribution. It is the next logical step to offer direct-to-consumer online sales of product. It should be noted that the aforementioned replicator may also be the distributor (Nimbus/Technicolor, WAMO/Deluxe). Also, replicators may ship directly to retailers, especially in the case of large accounts like Blockbuster.

#### Example in Accordance with a Preferred Embodiment

[0055] An example setting forth details relating to the tracking of DVDs will now be set forth. First, a content owner (such as studio) requests use of the BCA on their DVDs. Based on request, the replicator (examples include WAMO, Panasonic, Nimbus, Technicolor, Pioneer, Crest) adds unique BCA number to every DVD. Adding BCA number to each DVD requires a special (YAG) laser. This may be the very last step in the manufacturing process. The BCA numbers for a specific DVD must then be entered into Inter actual's BCA database. Information to track includes: DVD title, i.e. “Lost in Space”; BCA #/range, i.e. 12345687890; and Shipping Packaging/Tracking Container, i.e. Box 52221 to Hollywood Video.

[0056] After the BCA number is added to the DVDs, the DVDs are packagingboxed for distribution to either the Distributor or the Retailer. It should be noted that many companies take multiple forms, so the replicator and distributor may be one in the same. Also, some retailers are large/important enough to get shipments directly from replicator. The way in which the DVDs are packaging/shipped is very important because one must track the BCA numbers to actual shipping containers (box, etc.). Therefore tracking information must also be added to the BCA database.

[0057] If packaged DVDs are then sent to distributor, the distributor also has mechanisms, i.e. scanners, input device, and monitoring devices, in place for tracking based on their distribution. For example, Deluxe may receive a “package” of 100,000 copies of “Lost in Space”. However, the distributor ships 10,000 to Retailer A and 5,000 to Retailer B. The distributor should be able to “input” retailer A and B's distribution information into the system. Ideally, this becomes a seamless/automated process.

[0058] Once the DVDs reach the retailer (either from the replicator or distributor), then DVDs may be further divided and distributed to local stores/outlets. In such a situation, the retailer should be able to automatically “track” distribution of these DVDs through to their stores. Over time, all three entities (replicator, distributor, and retailer) are able to add tracking information to BCA database. Due to complexity and dependencies on existing business systems, the retail tracking concept will be rolled out in phases: replicator first most likely with key retail accounts. The distributors will be

brought in. Retailers will then begin to embrace the ability to track based on local outlet/store.

#### Utilization of BCA Identification at the End Consumer

[0059] As mentioned earlier, when a final user obtains the electronic storage medium, the electronic storage medium may be identified using the tracking identifier on the electronic storage medium. By this identification, various features may be executed upon identification of the electronic storage medium. It should be noted that, in one embodiment, identification is carried out by a computer and software governs the features that are executed after identification of the electronic storage medium.

[0060] For example, the present invention may be practiced in the context of a personal computer such as an IBM compatible personal computer, Apple Macintosh computer or UNIX based workstation. A representative hardware environment is depicted in FIG. 3, which illustrates a typical hardware configuration of a workstation in accordance with a preferred embodiment having a central processing unit 110, such as a microprocessor, and a number of other units interconnected via a system bus 112. The workstation shown in FIG. 3 includes a Random Access Memory (RAM) 114, Read Only Memory (ROM) 116, an I/O adapter 118 for connecting peripheral devices such as disk storage units 120 to the bus 112, a user interface adapter 122 for connecting a keyboard 124, a mouse 126, a speaker 128, a microphone 132, and/or other user interface devices such as a touch screen (not shown) to the bus 112, communication adapter 134 for connecting the workstation to a communication network (e.g., a data processing network) and a display adapter 136 for connecting the bus 112 to a display device 138. The workstation typically has resident thereon an operating system such as the Microsoft Windows NT or Windows/95 Operating System (OS), the IBM OS/2 operating system, the MAC OS, or UNIX operating system. Those skilled in the art will appreciate that the present invention may also be implemented on platforms and operating systems other than those mentioned.

[0061] A preferred embodiment is written using JAVA, C, and the C++ language and utilizes object oriented programming methodology. Object oriented programming (OOP) has become increasingly used to develop complex applications. As OOP moves toward the mainstream of software design and development, various software solutions require adaptation to make use of the benefits of OOP. A need exists for these principles of OOP to be applied to a messaging interface of an electronic messaging system such that a set of OOP classes and objects for the messaging interface can be provided.

[0062] OOP is a process of developing computer software using objects, including the steps of analyzing the problem, designing the system, and constructing the program. An object is a software package that contains both data and a collection of related structures and procedures. Since it contains both data and a collection of structures and procedures, it can be visualized as a self-sufficient component that does not require other additional structures, procedures or data to perform its specific task. OOP, therefore, views a computer program as a collection of largely autonomous components, called objects, each of which is responsible for

a specific task. This concept of packaging data, structures, and procedures together in one component or module is called encapsulation.

[0063] In general, OOP components are reusable software modules which present an interface that conforms to an object model and which are accessed at run-time through a component integration architecture. A component integration architecture is a set of architecture mechanisms which allow software modules in different process spaces to utilize each others capabilities or functions. This is generally done by assuming a common component object model on which to build the architecture. It is worthwhile to differentiate between an object and a class of objects at this point. An object is a single instance of the class of objects, which is often just called a class. A class of objects can be viewed as a blueprint, from which many objects can be formed.

[0064] OOP allows the programmer to create an object that is a part of another object. For example, the object representing a piston engine is said to have a composition-relationship with the object representing a piston. In reality, a piston engine comprises a piston, valves and many other components; the fact that a piston is an element of a piston engine can be logically and semantically represented in OOP by two objects.

[0065] OOP also allows creation of an object that "depends from" another object. If there are two objects, one representing a piston engine and the other representing a piston engine wherein the piston is made of ceramic, then the relationship between the two objects is not that of composition. A ceramic piston engine does not make up a piston engine. Rather it is merely one kind of piston engine that has one more limitation than the piston engine; its piston is made of ceramic. In this case, the object representing the ceramic piston engine is called a derived object, and it inherits all of the aspects of the object representing the piston engine and adds further limitation or detail to it. The object representing the ceramic piston engine "depends from" the object representing the piston engine. The relationship between these objects is called inheritance.

[0066] When the object or class representing the ceramic piston engine inherits all of the aspects of the objects representing the piston engine, it inherits the thermal characteristics of a standard piston defined in the piston engine class. However, the ceramic piston engine object overrides these ceramic specific thermal characteristics, which are typically different from those associated with a metal piston. It skips over the original and uses new functions related to ceramic pistons. Different kinds of piston engines have different characteristics, but may have the same underlying functions associated with it (e.g., how many pistons in the engine, ignition sequences, lubrication, etc.). To access each of these functions in any piston engine object, a programmer would call the same functions with the same names, but each type of piston engine may have different/overriding implementations of functions behind the same name. This ability to hide different implementations of a function behind the same name is called polymorphism and it greatly simplifies communication among objects.

[0067] With the concepts of composition-relationship, encapsulation, inheritance and polymorphism, an object can represent just about anything in the real world. In fact, our logical perception of the reality is the only limit on deter-

mining the kinds of things that can become objects in object-oriented software. Some typical categories are as follows:

[0068] Objects can represent physical objects, such as automobiles in a traffic-flow simulation, electrical components in a circuit-design program, countries in an economics model, or aircraft in an air-traffic-control system.

[0069] Objects can represent elements of the computer-user environment such as windows, menus or graphics objects.

[0070] An object can represent an inventory, such as a personnel file or a table of the latitudes and longitudes of cities.

[0071] An object can represent user-defined data types such as time, angles, and complex numbers, or points on the plane.

[0072] With this enormous capability of an object to represent just about any logically separable matters, OOP allows the software developer to design and implement a computer program that is a model of some aspects of reality, whether that reality is a physical entity, a process, a system, or a composition of matter. Since the object can represent anything, the software developer can create an object which can be used as a component in a larger software project in the future.

[0073] If 90% of a new OOP software program consists of proven, existing components made from preexisting reusable objects, then only the remaining 10% of the new software project has to be written and tested from scratch. Since 90% already came from an inventory of extensively tested reusable objects, the potential domain from which an error could originate is 10% of the program. As a result, OOP enables software developers to build objects out of other, previously built objects.

[0074] This process closely resembles complex machinery being built out of assemblies and sub-assemblies. OOP technology, therefore, makes software engineering more like hardware engineering in that software is built from existing components, which are available to the developer as objects. All this adds up to an improved quality of the software as well as an increased speed of its development.

[0075] Programming languages are beginning to fully support the OOP principles, such as encapsulation, inheritance, polymorphism, and composition-relationship. With the advent of the C++ language, many commercial software developers have embraced OOP. C++ is an OOP language that offers a fast, machine-executable code. Furthermore, C++ is suitable for both commercial-application and systems-programming projects. For now, C++ appears to be the most popular choice among many OOP programmers, but there is a host of other OOP languages, such as Smalltalk, Common Lisp Object System (CLOS), and Eiffel. Additionally, OOP capabilities are being added to more traditional popular computer programming languages such as Pascal.

[0076] The benefits of object classes can be summarized, as follows:

[0077] Objects and their corresponding classes break down complex programming problems into many smaller, simpler problems.

- [0078] Encapsulation enforces data abstraction through the organization of data into small, independent objects that can communicate with each other. Encapsulation protects the data in an object from accidental damage, but allows other objects to interact with that data by calling the object's member functions and structures.
- [0079] Subclassing and inheritance make it possible to extend and modify objects through deriving new kinds of objects from the standard classes available in the system. Thus, new capabilities are created without having to start from scratch.
- [0080] Polymorphism and multiple inheritance make it possible for different programmers to mix and match characteristics of many different classes and create specialized objects that can still work with related objects in predictable ways.
- [0081] Class hierarchies and containment hierarchies provide a flexible mechanism for modeling real-world objects and the relationships among them.
- [0082] Libraries of reusable classes are useful in many situations, but they also have some limitations. For example:
- [0083] Complexity. In a complex system, the class hierarchies for related classes can become extremely confusing, with many dozens or even hundreds of classes.
- [0084] Flow of control. A program written with the aid of class libraries is still responsible for the flow of control (i.e., it must control the interactions among all the objects created from a particular library). The programmer has to decide which functions to call at what times for which kinds of objects.
- [0085] Duplication of effort. Although class libraries allow programmers to use and reuse many small pieces of code, each programmer puts those pieces together in a different way. Two different programmers can use the same set of class libraries to write two programs that do exactly the same thing but whose internal structure (i.e., design) may be quite different, depending on hundreds of small decisions each programmer makes along the way. Inevitably, similar pieces of code end up doing similar things in slightly different ways and do not work as well together as they should.
- [0086] Class libraries are very flexible. As programs grow more complex, more programmers are forced to reinvent basic solutions to basic problems over and over again. A relatively new extension of the class library concept is to have a framework of class libraries. This framework is more complex and consists of significant collections of collaborating classes that capture both the small scale patterns and major mechanisms that implement the common requirements and design in a specific application domain. They were first developed to free application programmers from the chores involved in displaying menus, windows, dialog boxes, and other standard user interface elements for personal computers.
- [0087] Frameworks also represent a change in the way programmers think about the interaction between the code they write and code written by others. In the early days of procedural programming, the programmer called libraries provided by the operating system to perform certain tasks, but basically the program executed down the page from start to finish, and the programmer was solely responsible for the flow of control. This was appropriate for printing out paychecks, calculating a mathematical table, or solving other problems with a program that executed in just one way.
- [0088] The development of graphical user interfaces began to turn this procedural programming arrangement inside out. These interfaces allow the user, rather than program logic, to drive the program and decide when certain actions should be performed. Today, most personal computer software accomplishes this by means of an event loop which monitors the mouse, keyboard, and other sources of external events and calls the appropriate parts of the programmer's code according to actions that the user performs. The programmer no longer determines the order in which events occur. Instead, a program is divided into separate pieces that are called at unpredictable times and in an unpredictable order. By relinquishing control in this way to users, the developer creates a program that is much easier to use. Nevertheless, individual pieces of the program written by the developer still call libraries provided by the operating system to accomplish certain tasks, and the programmer must still determine the flow of control within each piece after it's called by the event loop: Application code still "sits on top of" the system
- [0089] Even event loop programs require programmers to write a lot of code that should not need to be written separately for every application. The concept of an application framework carries the event loop concept further. Instead of dealing with all the nuts and bolts of constructing basic menus, windows, and dialog boxes and then making these things all work together, programmers using application frameworks start with working application code and basic user interface elements in place. Subsequently, they build from there by replacing some of the generic capabilities of the framework with the specific capabilities of the intended application.
- [0090] Application frameworks reduce the total amount of code that a programmer has to write from scratch. However, because the framework is really a generic application that displays windows, supports copy and paste, and so on, the programmer can also relinquish control to a greater degree than event loop programs permit. The framework code takes care of almost all event handling and flow of control, and the programmer's code is called only when the framework needs it (e.g., to create or manipulate a proprietary data structure).
- [0091] A programmer writing a framework program not only relinquishes control to the user (as is also true for event loop programs), but also relinquishes the detailed flow of control within the program to the framework. This approach allows the creation of more complex systems that work together in interesting ways, as opposed to isolated programs, having custom code, being created over and over again for similar problems.
- [0092] Thus, as is explained above, a framework basically is a collection of cooperating classes that make up a reusable design solution for a given problem domain. It typically includes objects that provide default behavior (e.g., for

menus and windows), and programmers use it by inheriting some of that default behavior and overriding other behavior so that the framework calls application code at the appropriate times.

[0093] There are three main differences between frameworks and class libraries:

[0094] Behavior versus protocol. Class libraries are essentially collections of behaviors that you can call when you want those individual behaviors in your program. A framework, on the other hand, provides not only behavior but also the protocol or set of rules that govern the ways in which behaviors can be combined, including rules for what a programmer is supposed to provide versus what the framework provides.

[0095] Call versus override. With a class library, the code the programmer instantiates objects and calls their member functions. It's possible to instantiate and call objects in the same way with a framework (i.e., to treat the framework as a class library), but to take full advantage of a framework's reusable design, a programmer typically writes code that overrides and is called by the framework. The framework manages the flow of control among its objects. Writing a program involves dividing responsibilities among the various pieces of software that are called by the framework rather than specifying how the different pieces should work together.

[0096] Implementation versus design. With class libraries, programmers reuse only implementations, whereas with frameworks, they reuse design. A framework embodies the way a family of related programs or pieces of software work. It represents a generic design solution that can be adapted to a variety of specific problems in a given domain. For example, a single framework can embody the way a user interface works, even though two different user interfaces created with the same framework might solve quite different interface problems.

[0097] Thus, through the development of frameworks for solutions to various problems and programming tasks, significant reductions in the design and development effort for software can be achieved. A preferred embodiment of the invention utilizes HyperText Markup Language (HTML) to implement documents on the Internet together with a general-purpose secure communication protocol for a transport medium between the client and the Newco. HTTP or other protocols could be readily substituted for HTML without undue experimentation. Information on these products is available in T. Berners-Lee, D. Connolly, "RFC 1866: HyperText Markup Language-2.0" (November 1995); and R. Fielding, H. Frystyk, T. Berners-Lee, J. Gettys and J. C. Mogul, "Hypertext Transfer Protocol—HTTP/1.1: HTTP Working Group Internet Draft" (May 2, 1996). HTML is a simple data format used to create hypertext documents that are portable from one platform to another. HTML documents are SGML documents with generic semantics that are appropriate for representing information from a wide range of domains. HTML has been in use by the WorldWide Web global information initiative since 1990. HTML is an application of ISO Standard 8879; 1986 Information Processing Text and Office Systems—Standard Generalized Markup Language (SGML).

[0098] To date, Web development tools have been limited in their ability to create dynamic Web applications that span from client to server and interoperate with existing computing resources. Until recently, HTML has been the dominant technology used in development of Web-based solutions. However, HTML has proven to be inadequate in the following areas:

[0099] Poor performance;

[0100] Restricted user interface capabilities;

[0101] Can only produce static Web pages;

[0102] Lack of interoperability with existing applications and data; and

[0103] Inability to scale.

[0104] Sun Microsystem's Java language solves many of the client-side problems by:

[0105] Improving performance on the client side;

[0106] Enabling the creation of dynamic, real-time Web applications; and

[0107] Providing the ability to create a wide variety of user interface components.

[0108] With Java, developers can create robust User Interface (UI) components. Custom "widgets" (e.g., real-time stock tickers, animated icons, etc.) can be created, and client-side performance is improved. Unlike HTML, Java supports the notion of client-side validation, offloading appropriate processing onto the client for improved performance. Dynamic, real-time Web pages can be created. Using the above-mentioned custom UI components, dynamic Web pages can also be created.

[0109] Sun's Java language has emerged as an industry-recognized language for "programming the Internet." Sun defines Java as: "a simple, object-oriented, distributed, interpreted, robust, secure, architecture-neutral, portable, high-performance, multithreaded, dynamic, buzzword-compliant, general-purpose programming language. Java supports programming for the Internet in the form of platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive content" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying code from the server to client. From a language standpoint, Java's core feature set is based on C++. Sun's Java literature states that Java is basically, "C++ with extensions from Objective C for more dynamic method resolution."

[0110] Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic content for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia content. The tools use Internet standards, work on multiple platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX Controls, small, fast components that enable developers to embed parts of software in hypertext markup language (HTML) pages. ActiveX

Controls work with a variety of programming languages including Microsoft Visual C++, Borland Delphi, Microsoft Visual Basic programming system and, in the future, Microsoft's development tool for Java, code named "Jakarta" ActiveX Technologies also includes ActiveX Server Framework, allowing developers to create server applications. One of ordinary skill in the art readily recognizes that ActiveX could be substituted for JAVA without undue experimentation to practice the invention.

#### System Software in Accordance with a Preferred Embodiment

[0111] When a consumer purchases DVD at local store, or purchases online through online retailer a new DVD is available for consumer use. The consumer places the DVD in a computer and the DVD initiates an online session between the user and an Internet server application in tight communication with the DVD in the DVD-ROM drive. Three BCA usage cases include:

[0112] (1) a consumer launches a browser and goes to a web site that utilizes the BCA information to look up information in a database. The database is also updated with information gleaned from the current user and their demographics.

[0113] (2) a local application (like PCFriendly) automatically connects to Internet and to a web server that looks up and/or acts on BCA information, or

[0114] (3) a local application like PCFriendly utilizes information already contained in the BCA number and tailors experience locally based on this information.

[0115] The details associated with the various cases will be discussed. Case 1: go to web site that looks up BCA With a DVD in their drive, consumer connects to a special web site that has an agent/component embedded on the web page that can read the BCA information. This embedded component reads the BCA, along with other potential information (user id, etc.), passes this information to the web server. The web server then tailors a response to the consumer based on pre-defined conditions/marketing/profile.

[0116] Case 2: local application (like PCFriendly client software) automatically connects to a web server (without manual intervention of consumer) and passes BCA information to the web server. Based on the BCA number and other potential information, the web server passes information to the consumer's client software or presents remote Internet-based information based on this information/profile/retailer/etc.

[0117] Case 3: location application (like PCFriendly) reads BCA information and acts upon predefined information in the BCA number itself. This case does not necessarily require an Internet connection. The BCA is obtained utilizing ASPI code to read the 188 bytes of information

#### Examples of Cases

[0118] Case 1: ActiveX control is designed using C++ and embedded in HTML page (using standard OBJECT definition in HTML). When the web page is loaded, so is the ActiveX control. Upon a grant of permission by a consumer, the ActiveX control accesses the DVD-ROM drive, obtains BCA data, and any other pertinent information. The ActiveX

control then "posts" this information to the web server using HTTP or FTP POST methods. The web server automatically reads and parses the POST information, and acts upon this information (for example, by sending the consumer to a unique URL that is only accessible if the correct DVD with the correct BCA is in the DVD-ROM drive).

[0119] Case 2: Local C++ application (PCFriendly) utilizes a remote agent technology developed by InterActual. The remote agent technology automatically connects to the remote web server (without consumer interaction) and passes the web server the BCA number with any other pertinent information. The remote agent also supports HTTP or FTP POST methods. The web server automatically reads and parses the POST information, and acts upon this information.

#### Examples Include

[0120] Consumer request to purchase a specific product is automatically routed to the retailer from which the original DVD was purchased. In support of this example, a virtual POP/MDF display and information is downloaded (or unlocked) locally and presented to consumer.

[0121] Case 3: Local C++ application or activeX controls in a local web page access the BCA information on the DVD. Based on this information, the local application acts upon this information (In this mode, the information contained in the BCA field must have sufficient information for local application to act upon).

[0122] The current system involves an online database that provides a real-time lookup based on the BCA The resulting lookup in the database can retrieve information specific to the application such as a consumer profile, retailer and support location and piracy information.

#### USAGES OF BCA INFORMATION

##### [0123] Retail Distribution

[0124] When a remote agent connects to a server with BCA information, the server performs a real-time lookup on the BCA number and determines the replicator, distributor, and/or retailer for the passed BCA number. This information can then be used for various projects, such as Updating or changing channel/banner/programming in PCFriendly software. FIG. 2 depicts this operation as a RemoteSync 238. Unlock specific assets such as HTML, video, graphics and others which are depicted in function block Unlock Server 230. Play different assets or portion of video based on BCA information as shown in function block Unlock Server 230. The application also downloads new content based on the BCA information RemoteSync 238. The BCA information can also be utilized to direct e-commerce transactions or "buy-me" buttons to an appropriate retailer utilizing the RemoteTrak/BCATrak function 234.

[0125] An application in accordance with a preferred embodiment can also broadcast new information/updates as shown in the Broadcast Server function block 236. Logic is also provided to unlock and/or control access to specific web sites based on BCA information as shown in the RemoteTrak Server function block 230. This logic provides consumer redirect to specific "storefront" of a retailer.

##### Track Individual Retail Store Performance

[0126] Specific retail store performance and consumer online usage associated with specific retailers can be tracked

utilizing information based on the BCA number. This provides a local retailer with information to determine the most successful opportunities to get users online. Information such as a virtual Point of Purchase (POP) and Marketing Development Fund (MDF) utilize the BCA information and the RemoteTrak Server function 230 to track and attract consumers.

#### Coupons

[0127] Discount coupons and the like (e.g., "cents off" coupons, rebate coupons, special offer coupons, or the like, collectively referred to herein as "coupons") have become an integral part of marketing strategies for many products, particularly retail consumer goods, sundries, foodstuffs, hardware, clothing, and the like, typically sold at local grocery, drug, and discount stores. Product manufacturers have come to rely upon coupons, rebate and gift certificates or the like to promote new and existing products, boost sales, and obtain demographic information concerning consumer buying patterns. Consumers have come to rely upon coupons or certificates as a technique for reducing costs.

[0128] Prior art couponing techniques have had several disadvantages, not the least of which are low response rate and fraud. In the prior art, coupons may be distributed using direct mailing techniques, printed in newspapers, magazines, or the like, distributed with other commercial goods (e.g., laundry soap coupon packaged with washing machine), or distributed (e.g., by original equipment manufacturers or OEMs) with the same or like goods, computers or the like (e.g., "cents off" toward next purchase). Such techniques require massive amounts of printing and distribution, and historically have a low response rate (e.g., typically less than 2% of coupons distributed are redeemed). Thus, such mass-distribution techniques may not be cost effective, and are not environmentally friendly, due to the large amount of paper wasted.

[0129] Such low response rates may be due in part to the difficulty a consumer may have in maintaining, cataloging, and finding appropriate coupons before shopping. A particular consumer may have at his or her disposal only those coupons that have been sent to him or her and have been retained by the consumer. Moreover, since many coupons have expiration dates, a consumer may have to carefully catalog each coupon to insure that it is redeemed before such an expiration date occurs. Such techniques are time-consuming and cumbersome. Generally, only those consumers on a budget or those who use couponing as a hobby have sufficient time to maximize their use of available coupons. Busier and more affluent consumers may not believe that such coupon management techniques are cost effective. This latter group of consumers may represent a more desirable demographic for a product manufacturer to attract or track.

[0130] With the advent of double or even triple redemption couponing promotions provided by some retail stores (e.g., grocery store chain or the like) as well as generous cash rebate coupon promotions (i.e., gift certificates or the like), fraud had become an every increasing problem in coupon marketing. Color photocopiers may create coupons that are indistinguishable from originals. Unscrupulous consumers may use such copied coupons to purchase large numbers of items at reduced prices or fraudulently obtain rebates for products which were never purchased. Moreover,

some unscrupulous retailer may conspire with coupon brokers to redeem large numbers of illicitly obtained or generated to defraud manufacturers.

[0131] As coupon discounts or rebates may be used for promotional purposes, the resulting net price to the consumer with such a discount may be less than the product manufacturer's wholesale price. A product manufacturer may offer such steep discounts in the hope of obtaining future sales at full retail prices. If a consumer uses a photocopied coupon for multiple purchases of a retail item, the product manufacturer may not obtain the desired repeat sales at full retail price, and the entire scheme of couponing may be defeated.

[0132] In addition, prior art couponing techniques have yielded little, if any, useful data to product manufacturers regarding who is redeeming such coupons. Consumer demographic data is invaluable to a product manufacturer in determining which products to target to particular consumer groups (e.g., through particular advertising venues). Moreover, such demographic data may be used to more efficiently distribute future coupons. In addition, information as to the buying habits (i.e., recency, frequency, and monetary value or RFM) and demographics of particular consumers or groups of consumers have a market value and such information may be sold or traded for a profit.

[0133] Various techniques have been tried to eliminate or reduce fraud, provide more convenient techniques for distributing coupons, and to better track consumer demographic data. De Lapa et al., U.S. Pat. No. 5,353,218 discloses a focused coupon system. FIG. 6 of De Lapa et al. is most illustrative. De Lapa et al. discloses a system for distributing coupons with a machine readable code (barcode) containing both customer and coupon identifications. The consumer code may be replaced with a generic code used in a look-up table for coupon verification and information. The entire machine-readable code may be captured and uploaded to a central database for determining coupon and consumer identification. The uploaded information may be used for marketing purposes (to determine which coupons to next send to the consumer) and/or for rebate purposes.

[0134] Although the system of De Lapa et al. attempts to provide a more focused distribution technique, the system still relies upon paper coupons being distributed to consumers. Consumers may throw out such mass mailings (i.e., "junk mail") without opening them. Moreover, the system relies upon the consumer supplying demographic information in a questionnaire or the like in order to be provided with the coupons. Moreover, since the coupons of De Lapa et al. are preprinted, coupon trading or copying may be more prevalent.

[0135] Furthermore, in De Lapa et al., no mechanism is present for capturing subsequent demographic information. In addition, as consumer data is captured at the store level, an additional mechanism may be required to upload such consumer information to a centralized database to capture consumer demographic information. Additional data processing hardware/software may be required at a retail store in order to process such data. Thus, retailers may be initially reluctant to invest in such a scheme.

[0136] In retailing, it may be essential to check out consumers in as little time as possible. Thus, if additional

processing time is required during customer checkout to process the coupons of De Lapa et al. retailers may be less likely to accept adopt such technologies.

[0137] Moreover, under the scheme of De Lapa et al., there is no mechanism provided to insure that the individual who receives the coupons is the targeted individual. If a consumer moves to a new address, new occupants at the old address may receive and redeem coupons addressed to the consumer. Thus, target tracking data may be inaccurate or incomplete.

[0138] Murphy, U.S. Pat. No. 5,305,195, issued Apr. 19, 1994, discloses an interactive advertising system for on-line terminals. A series of remote terminals receive compressed and encoded video advertising signals that may be stored on an internal hard drive. The advertising videos are played, and a consumer may select products using the terminal. In FIG. 4, (Col. 7, lines 45-50) Murphy discloses that a printer may be provided for printing selected coupons.

[0139] The apparatus of Murphy may solve some of the problems associated with distributing coupons in paper form. However, The Murphy system appears to be more concerned with directing advertising information than collecting demographic information or distributing coupons. Thus, it does not appear that the apparatus of Murphy is equipped to process demographic information or reduce coupon fraud. Moreover, Murphy discloses his apparatus for use in college campuses, a limited and narrow consumer demographic.

[0140] Von Kohorn, U.S. Pat. No. 5,128,752, issued Jul. 7, 1992 discloses a system and method for generating and redeeming tokens selected from television data. Product information and authentication data may be transmitted and displayed on a television and a home printer. A viewer may select a coupon for printing and redeem the coupon at a retail store.

[0141] Von Kohorn does disclose a technique for reducing fraud (Col. 7, lines 16-38). However, it appears that these techniques require action at the retail level to verify that a coupon is indeed legitimate, including, in one embodiment, requesting identification credentials from the consumer. Such techniques may be intrusive and cumbersome to use in a retail establishment where a number of coupons may be redeemed at any given time.

[0142] Moreover, it does not appear in the system of Von Kohorn, which relies on broadcasting, does not target specific consumers with particular coupons. Rather, it appears that the coupons are distributed to all viewers equipped with the appropriate apparatus. Note that in FIG. 6 (Col. 9, lines 40-48) Von Kohorn discloses a technique for recording marketing data from consumer information encoded into the coupon.

[0143] Axler et al., U.S. Pat. No. 5,305,197, issued Apr. 19, 1994, discloses a coupon-dispensing machine with feedback. A consumer kiosk is placed in a retail establishment or the like to display advertising (LED scroll) and allow customers to print out selected coupons. A proximity sensor detects the presence of customers near the apparatus.

[0144] The Axler device may solve some of the problems associated with paper distribution of coupons. However, it does not appear that the Axler device may retrieve any

significant amount of consumer demographic data other than the number and type of coupons printed. Moreover, within the in-store environment, it may be difficult to enter such consumer data, particularly with the keypad disclosed by Axler. Thus, it does not appear that the Axler device may be suitably adapted to retrieve consumer demographic data.

[0145] A fundamental fault with the Axler device is that it does not appear to target or prior motivates customers with to visit a retailer with specific coupons. Rather, the in-store location of the Axler device may facilitate a consumer "targeting" a coupon. In other words, a consumer may make a number of product selections in a store and then visit the coupon kiosk of Axler to determine whether any purchases are subject to coupon discount or rebate. Thus, the fundamental goal of couponing—to motivate a consumer to purchase a product—may be compromised.

[0146] In addition, the kiosk of Axler may occupy valuable commercial retail space. In a retail store (e.g., supermarket or the like) even a few feet of shelving may be extremely valuable for displaying and containing retail merchandise. Product manufacturers may even pay "rent" to a retail establishment in the form of rebates or promotional fees in order to obtain prominent shelf space. Thus, a retail establishment may be loath to give up such valuable space to a couponing kiosk. Moreover, it may be time consuming and frustrating for customers waiting in line to access the kiosk. Providing additional kiosks may be cost-prohibitive.

#### Support Services in Accordance with a Preferred Embodiment

[0147] To provide enhanced support for DVD in a commercial environment, the BCA is utilized to redirect to a specific support site based on table lookup utilizing the BCA number as shown in FIG. 2 at function block 234 RemoteTrak/BCATrak Server function block. Logic is also provided to track disc anomalies and defects from manufacturing process as shown in function block 234 RemoteTrak/BCATrak Server. Other logic is also provided to track retailer-specific support issues as shown in function block 234 RemoteTrak/BCATrak Server, to track geographical support issues as shown in function block 234 RemoteTrak/BCATrak Server, to restrict access to support sites based on BCA information as shown in function block RemoteTrak/BCATrak Server 234. Finally, enhanced support is provided for broadcast updates utilizing support and drivers based on BCA information as shown at function block 236 Broadcast Server.

#### Security in Accordance with a Preferred Embodiment

[0148] The BCA information can also be combined with game unlocking logic to provide an authorized user with unlocked video based on BCA information as shown at function block 238 DVDUnlock Server. BCA information has a unique identifier which, when combined with other data, can track when a movie and/or a game was given to a friend which will trigger another transaction for payment or other information as shown in function block 234 RemoteTrak/BCATrak Server. This information can also be used to track pirated DVDs, and report the information back to the retailer as shown in function block 230 RemoteTrak/BCATrak Server, back to a manufacturer as shown in function



block 230 RemoteTrak/BCATrak Server and back to a distributor as shown in function block 230 RemoteTrak/BCATrak Server. This capability provides the ability to localize pirated discs to a specific region/retailer as shown in function block 230 RemoteTrak/BCATrak Server and track illegal region code use and potentially trace back to retailer/distributor as shown in function block 230 RemoteTrak/BCATrak Server.

General/Advertising Logic in Accordance with a Preferred Embodiment

[0149] Logic is also provided to tailor video based information as part of the BCA (play video 1 for one demographic, play video 2 for another as shown in function block 238 DVDUnlock Server, RemoteSync, and to tailor internet/browser experience based on BCA information as shown in function block 238 RemoteTrak/BCATrak Server. Targeted advertising is also provided based on BCA information and content can be tailored for channel/banner/programming within PCFriendly software) based on consumer profile which is associated with BCA as shown in function block 238 RemoteSync.

[0150] FIG. 5 is a block diagram of a user experience in accordance with a preferred embodiment. The BCA number 503 is burned/added onto DVD 505. When the DVD is placed into a consumer's computer 510, InterActual's software automatically reads the BCA number and passes this information to the web server. The BCA information is passed to the web server, running an ISAPI extension 520, using either HTTP or FTP protocol 515. The information can be passed from a local "client" application, or an applet or ActiveX-type control can be downloaded from a web site that passed this information to the web server. The information is currently passed using an HTTP POST command using the syntax shown below.

[0151] <http://www.pcfriendly.com/scripts/RemoteAgentUpgrade.DLL&bca=1234568790?userid=1234568790?> . . .

[0152] The current implementation of the web server is an ISAPI extension written in Visual C++ and is currently named RemoteAgentUpgrade.DLL for use with Microsoft Windows NT. Upon receiving the POST command, the ISAPI extension parses the information in the POST command to determine the BCA number and other associated information (such as user ID, etc.). This information is then logged in the web server log table 530, and is used to query specific information in the web server database 550 based on the POST. This flexible database structure enables a variety of uses of the BCA number.

[0153] A retailer example in accordance with a preferred embodiment is presented to assist one of ordinary skill in the art to make and use the invention without undue experimentation. A consumer inserts a DVD into their DVD-ROM drive. The consumer is presented with an HTML page with a "Buy-Me" button. Upon clicking the Buy-Me button, the consumer is connected to the Internet to a specific web page that includes an ActiveX control. The ActiveX control automatically connects to the ISAPI extension with BCA information for the currently inserted DVD. The ActiveX control also informs the ISAPI extension that the consumer is attempting an e-commerce transaction. The ISAPI extension parses the information from the POST command, and

connects to the web server database. Since the ActiveX control informed the ISAPI extension that an e-commerce transaction is being attempted, the ISAPI extension connects to the web server database to determine the retailer from which the DVD was originally purchased. This can be determined because a web server database contains a BCA lookup table 560 with three fields:

[0154] BCA Number #123458790

[0155] DVD Title Name Lost In Space

[0156] Retailer/Store Hollywood Video, Store #23

[0157] Using the Retailer/Store information, the appropriate e-commerce URL can be determined from Retailer table 570 that contains information specific for that Retailer:

[0158] Retailer/Store Hollywood Video, Store #23

[0159] E-Commerce URL <http://www.retailer23.com/> . . .

[0160] FIG. 6 is a flowchart of a redirect operation for an electronic commerce transaction utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 600 when a user inserts a DVD into a player and the electronic commerce operation is initiated by a user action as shown in function block 610. When the user selects the purchase option at 610, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 620. Then the server performs a table lookup to ascertain the retailer that sold the original DVD as shown in function block 630. The original retailer becomes the target for the purchase that the user initiated in function block 610, and the e-commerce transaction is re-routed to the retailer that sold the disk as shown in function block 640. Finally, a transaction is posted to the server database that memorializes the events associated with the re-direct operation

[0161] FIG. 7A and 7B are flowcharts setting forth the detailed logic associated with user connection and update for DVD processing in accordance with a preferred embodiment. Processing commences when a user connects to the Internet with a DVD application active as illustrated in function block 700. The remote agent detects the live internet connection and connects the application to a server for further processing as shown in function block 710. Then, the server connects the application with the appropriate version identification and upgrades the remote application if an upgraded version is available without further input from the user as shown in function block 720. If the user is a first time user, then the server obtains user information from the user utilizing, for example data from the DVD, or a query operation as shown in function block 730. Then, the application collects current DVD usage information and logs the information to a database as shown in function block 740. Finally, the current DVD information is transmitted to the user as shown in function block 750. Processing is then transferred to function block 752 of FIG. 7B where the application determines if any broadcast events are available. Then, in function block 754, if a user requests broadcast events, then the server passes the information to the user in HTTP format as shown in function block 756. The remote agent receives the information from the server and converts the information for the particular DVD player as shown in

function block 758, and ultimately logs user information in a database at the server as shown in function block 760.

#### General Advertising Flows

[0162] FIG. 8 is a flowchart setting forth the detailed logic for general advertising services in accordance with a preferred embodiment. The flowchart illustrates the detailed logic associated with presenting advertising (such as a banner) customized for a particular distributor/retailer/etc.

[0163] FIG. 8 presents logic demonstrating the display of specific advertising information based on a retailer/distributor utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 800 when a user inserts a DVD with BCA information into a player, and the advertising operation is initiated by a user action as shown in function block 810. When a user connects to a web page on the Internet at 810, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 820. Then the server performs a table lookup to ascertain the retailer that sold the original DVD as shown in function block 830. Once the original retailer is ascertained, the server performs another table lookup to determine the advertising banner as shown in function block 840. The advertising banner associated with original retailer is then displayed in the web site 810 as shown in function block 850. Finally a transaction is posted to the server database that memorializes the events associated with the advertising operation 860.

[0164] Distributors, retailers, computer or other hardware manufacturers, direct sales people, content developers or anyone who distributes, sells, or gives away DVDs will all receive benefits as detailed below in accordance with a preferred embodiment. Some of these include for example:

[0165] Blockbuster, DVDExpress, Amazon.com, Best Buy, Deluxe, Technicolor/Ninbusl, IBM, Gateway, Dell, Creative Labs, New Line, Warner, Activision, Electronic Arts, General Motors and Ford Motor Company.

[0166] FIG. 9 is a flowchart demonstrating the display of specific advertising information based on genre/type of DVD utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 900 when a user inserts a DVD with BCA information into a player, and the advertising operation is initiated by a user action as shown in function block 910. When the user connects to web page on the Internet at 910, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 920. Then the server performs a table lookup to ascertain the title and genre of the DVD as shown in function block 930. Once the title and genre is ascertained, the server performs another table lookup to determine the advertising banner as shown in function block 940. The advertising banner associated with the title and genre of the DVD is then displayed in the web site 910 as shown in function block 950. Finally a transaction is posted to the server database that memorializes the events associated with the advertising operation 960.

[0167] FIG. 10 is a flowchart of a download operation for downloading and updating retailer-specific information of

the DVD utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 1000 when a user connects to the Internet with a DVD application active. Logic detects a live Internet connection, reads the BCA information, and initiates a connection to the server as shown in function block 1010. After logic initiates the connection to the server in 1010, the DVD application requests all available downloads from the server for the retailer of the currently inserted DVD, as shown in function block 1020. The server performs a table lookup to ascertain the retailer that sold the original DVD as shown in function block 1030. Then the server performs another table lookup to determine the download information as shown in function block 1040. Once the download information is determined for the request initiated by the application in function block 1020, the server passes the download information to the application using HTTP protocol as shown in function block 1050. Finally a transaction is posted to the server database that memorializes the events associated with the download operation 1060.

[0168] FIG. 11 is a flowchart of a download operation for downloading and updating DVD title-specific information utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 1100 when a user connects to the Internet with a DVD application active. Logic detects a live Internet connection, reads the BCA information, determines DVD Application version information, and initiates a connection to the server as shown in function block 1110. After logic initiates the connection to the server in 1110, the DVD application requests all available downloads from the server for the currently inserted DVD title, as shown in function block 1120. The server performs a table lookup to ascertain the DVD title as shown in function block 1130. Then the server performs another table lookup to determine the download information as shown in function block 1140. Once the download information is determined for the request initiated by the application in function block 1120, the server passes the download information to the application using HTTP protocol as shown in function block 1150. Finally a transaction is posted to the server database that memorializes the events associated with the download operation 1160.

[0169] FIG. 12 is a flowchart of a tailored video viewing operation utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 1200 when a user inserts a DVD into a player and video playback is initiated by a user action as shown in function block 1210. When the user selects the play video option at 1210, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 1220. The server performs a table lookup to ascertain the retailer that sold the original DVD as shown in function block 1230. Then the server performs another table lookup to determine the correct retailer video to play as shown in function block 1240. Once the retailer video information is determined for the request initiated by the application in function block 1210, the server initiates playback of the correct video for the retailer that sold the disk as shown in function block 1250. Finally a transaction is posted to the server database that memorializes the events associated with the video viewing operation operation 1260.

[0170] FIG. 13 is a flowchart of a tailored video viewing operation utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 1300 when a user inserts a DVD into a player and video playback is initiated by a user action as shown in function block 1310. When the user selects the play video option at 1310, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 1320 and transmitted to the server. The server performs a table lookup to ascertain the genre and/or title as shown in function block 1330. Then the server performs another table lookup to determine the correct genre and/or title video to play as shown in function block 1340. Once the genre and/or title video information is determined for the request initiated by the application in function block 1310, the server initiates playback of the correct video for the genre and/or title as shown in function block 1350. Finally a transaction is posted to the server database that memorializes the events associated with the video viewing operation operation 1360.

[0171] FIG. 14 is a flowchart of the logic associated with a tailored multimedia viewing operation utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 1400 when a user inserts a DVD into a player and view is initiated by a user action as shown in function block 1410. When the user selects the view option at 1410, logic is initiated to read the BCA information as shown in function block 1420. The DVD application performs a local table lookup to ascertain the genre/title/retailer as shown in function block 1430. Then the DVD application performs another local table lookup to determine the correct multimedia element to display as shown in function block 1440. Once the multimedia element is determined for the request initiated by the application in function block 1410, the DVD application initiates playback of the correct multimedia element for the genre/title/retailer as shown in function block 1450. Finally a transaction is posted to the server database that memorializes the events associated with the multimedia viewing operation 1460.

#### Flowcharts for Security Processing in Accordance with a Preferred Embodiment

[0172] FIG. 15 is a flowchart of a security operation for restricting access to specific web sites utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 1500 when a user inserts a DVD into a player and the security operation is initiated by a user action as shown in function block 1510. When the user initiates connection to a secure web site at 1510, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 1520. Then the server performs a table lookup to ascertain if the user, based on the BCA number, is allowed access to the secure web site as shown in function block 1530. The server either allows or restricts entry to the web site based on the BCA number as shown in function block 1540. Finally a transaction is posted to the server database that memorializes the events associated with the security operation 1550.

[0173] FIG. 16 is a flowchart of a unlock operation for an electronic commerce transaction utilizing BCA information for intelligent processing in accordance with a preferred

embodiment. Processing commences at 1600 when a user inserts a DVD into a player and the unlock operation is initiated by a user action as shown in function block 1610. When the user selects the play/install DVD option at 1610, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 1620. Then the server performs a table lookup to ascertain if the DVD can be unlocked for playing or installation as shown in function block 1630. If the server determines that the user must first perform a purchase transaction, the server prompts the user for any necessary transaction information as shown in function block 1640. After the user completes the transaction in function block 1640, or the server determines that a transaction occurred at an earlier time, or if the server determines that a transaction does not need to occur, the server performs the unlock operation as shown in function block 1650. Finally a transaction is posted to the server database that memorializes the events associated with the unlock operation 1660.

[0174] FIG. 17 is a flowchart of an unlocking operation for an electronic commerce transaction utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 1700 when a user inserts a DVD into a player and the unlock operation is initiated by a user action as shown in function block 1710. When the user selects the play/install DVD option at 1710, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 1720. The server performs a table lookup to ascertain the user information for the DVD using the BCA information as shown in function block 1730. Then the server performs a table lookup to ascertain if the DVD can be unlocked for playing or installation as shown in function block 1740. If the server determines that the user must first perform a purchase transaction, the server prompts the user for any necessary transaction information as shown in function block 1750. After the user completes the transaction in functional block 1750, or if the server determined that a transaction occurred at an earlier time, or if the server determines that a transaction does not need to occur, the server performs the unlock operation as shown in function block 1760. Finally a transaction is posted to the server database that memorializes the events associated with the unlocking operation 1770.

[0175] FIG. 18 is a flowchart of a logging operation for tracking piracy and misuse of a DVD utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 1800 when a user inserts a DVD into a player and the logging operation is initiated by a user action as shown in function block 1810. When the user user selects the play/install DVD option at 1810, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 1820. The server performs a table lookup to ascertain if the user, based on the BCA number, is allowed to apply or install the DVD as shown in function block 1830. Then the server either enables or disables the DVD for playback/installation as shown in function block 1840. Finally a transaction is posted to the server database that memorializes the events associated with the logging operation 1850. The logging information can be used to localize pirated discs to a specific region,

track illegal region code use, and trace misuse/pirated DVDs back to retailer, distributor, manufacturer, or content developer.

#### Support Services

[0176] FIG. 19 is a flowchart of a redirect operation for a support transaction for intelligent processing in accordance with a preferred embodiment. Processing commences at 1900 when a user inserts a DVD with BCA information into a player, and the redirect operation is initiated by a user action as shown in function block 1910. When the user selects the support option at 1910, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 1920. Then the server performs a table lookup to ascertain the support organization for the original DVD as shown in function block 1930. The support organization becomes the target for the support request that the user initiated in function block 1910, and the support transaction is re-routed to the support organization associated with the DVD in function block 1940. Finally a transaction is posted to the server database that memorializes the events associated with the redirect operation 1950.

[0177] FIG. 20 is a flowchart of a display operation for a support transaction for intelligent processing in accordance with a preferred embodiment. Processing commences at 2000 when a user inserts a DVD with BCA information into a player, and the display operation is initiated by a user action as shown in function block 2010. When the user selects the support option at 2010, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 2020. Then the server performs a table lookup to ascertain the DVD-specific support information for the DVD in the user's player as shown in function block 2030. Once the server has determined the DVD-specific information for the support request initiated by the user in function block 2010, the DVD-specific information is displayed to the user in function block 2040. Finally a transaction is posted to the server database that memorializes the events associated with the display operation 2050.

[0178] FIG. 21 is a flowchart of support tracking utilizing BCA for intelligent processing in accordance with a preferred embodiment. Processing commences at 2100 when a user inserts a DVD with BCA information into a player, and the display operation is initiated by a user action as shown in function block 2110. When the user selects the support option at 2110, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 2120. Then the server performs a table lookup to ascertain the DVD-specific support information for the DVD in the user's player as shown in function block 2130. Once the server has determined the DVD-specific information for the support request initiated by the user in function block 2110, the DVD-specific information is used, for example, to track

retailer-specific support issues or geographical support issues as shown in function block 2140. Finally a transaction is posted to the server database that memorializes the events associated with the display operation 2150 and the memorialized information is utilized to generate reports tracking retailer-specific support issues or geographical support issues.

[0179] FIG. 22 is a flowchart of a redirect operation for a support transaction for intelligent processing in accordance with a preferred embodiment. Processing commences at 2200 when a user inserts a DVD with BCA information into a player, and the redirect operation is initiated by a user action as shown in function block 2210. When the user selects the support option at 2210, logic is initiated to read the BCA information and this information is combined with other user information from the server database as shown in function block 2220. Then the server performs a table lookup to ascertain the support organization for the original DVD as shown in function block 2230. The support organization becomes the target for the support request that the user initiated in function block 2210, and, if allowed, the support transaction is re-routed to the support organization associated with the DVD in function block 2240. Otherwise, the user is redirected to a location informing the user that support location is not available. Finally a transaction is posted to the server database that memorializes the events associated with the redirect operation 2250.

[0180] FIG. 23 is a flowchart of a broadcast operation for downloading update, support and application information utilizing BCA information for intelligent processing in accordance with a preferred embodiment. Processing commences at 2300 when a user connects to the Internet with a DVD application active. Logic detects a live Internet connection, reads the BCA information, determines DVD application version information, and initiates a connection to the server as shown in function block 2310. After logic initiates the connection to the server in 2310, the DVD application requests all broadcast information from the server for the DVD, as shown in function block 2320. The server performs a table lookup to ascertain the broadcast information for the DVD as shown in function block 2330. Once the broadcast information is determined for the request initiated by the application in function block 2320, the server passes the broadcast information to the application using HTTP protocol as shown in function block 2340. Then the DVD application acts upon the broadcast information by either presenting information to the user or automatically acting upon the information as shown in function block 2350. Finally a transaction is posted to the server database that memorializes the events associated with the download operation 2360. The e-commerce URL is then returned to the ActiveX control so that the consumer's purchase request can be redirected to the appropriate URL.

[0181] Visual C++ code in accordance with a preferred embodiment is provided below to further embellish the description of the invention.

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\* These functions are used to obtain BCA information

DATE	NAME	REASON
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-continued

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*3/22/99          ITI          Created
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*NOTES:
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* © COPYRIGHT 1999 InterActual Technologies, Inc. ALL RIGHTS RESERVED.
...../

#include "stdafx.h"
#include "scsdefs.h"
#include "wnaspi32.h"
DWORD xReportBCA(LPBYTE pbData, WORD cbData);
DWORD AtapiSendCommand(LPBYTE pPacket, LPBYTE pBuffer, DWORD cbBuffer);
DWORD AtapiInit(int index);
void AtapiUninit();
DWORD xReportBCA(LPBYTE pbData, WORD cbData)
{
    DWORD nReturn;
    UCHAR    Cdb[16];
    DWORD    bWindowsNT = FALSE;
    OSVERSIONINFO vi;
    vi.dwOSVersionInfoSize = sizeof(vi);
    if (GetVersionEx(&vi))
        bWindowsNT = (vi.dwPlatformId == VER_PLATFORM_WIN32_NT);
    if (bWindowsNT)
        return FALSE; // for now not implemented
    ZeroMemory(&Cdb, sizeof(Cdb));
    Cdb[0] = 0xAD; // CMD_READ_DVD_STRUC;
    Cdb[7] = 0x03; // Format
    Cdb[8] = HIBYTE(cbData); // sizeof AllocationLength
    Cdb[9] = LOBYTE(cbData); // sizeof AllocationLength
    Cdb[10] = 0; // Agid
    nReturn = AtapiSendCommand(Cdb, pbData, cbData);
    return nReturn;
}
typedef DWORD (__cdecl *LPFNSENDASPI32COMMAND)(LPSRB);
typedef DWORD (__cdecl *LPFNGETASPI32SUPPORTINFO)(VOID);
BOOL AspiInquiryCmd(BYTE *pbInq, WORD cbData);
// statics yuk
static BYTE AdapterCount = 0;
static BYTE AdapterID = 0;
static BYTE TargetID = 0;
LPFNSENDASPI32COMMAND g_fnSendASPI32Command = NULL;
LPFNGETASPI32SUPPORTINFO g_fnGetASPI32SupportInfo = NULL;
HINSTANCE g_hWNASPI = NULL;
DWORD AtapiInit(int index)
{
    if (g_fnSendASPI32Command && g_fnGetASPI32SupportInfo)
        return TRUE;
    if (!g_hWNASPI = LoadLibrary("WNASPI32.DLL"))
        return FALSE;
    if (NULL == (g_fnSendASPI32Command = (LPFNSENDASPI32COMMAND)
        GetProcAddress(g_hWNASPI, "SendASPI32Command")))
        return FALSE;
    if (NULL == (g_fnGetASPI32SupportInfo = (LPFNGETASPI32SUPPORTINFO)
        GetProcAddress(g_hWNASPI, "GetASPI32SupportInfo")))
        return FALSE;
    DWORD ASPI32Status = (*g_fnGetASPI32SupportInfo)();
    AdapterCount = (LOBYTE(LOWORD(ASPI32Status)));
    if ((AdapterCount == 0) || (HIBYTE(LOWORD(ASPI32Status)) != SS_COMP))
        return FALSE;
    BYTE pbInq[LEN_INQUIRY_DATA+1];
    for (BYTE aid = 0; aid < AdapterCount; aid++)
        for (BYTE tid = 0; tid < MAX_TARGET; tid++){
            AdapterID = aid;
            TargetID = tid;
            if (AspiInquiryCmd(pbInq, LEN_INQUIRY_DATA)){
                if (DTYPE_CROM == pbInq[0]){
                    if (index == 0){
                        return TRUE;
                    }
                }
            }
        }
    return FALSE;
}
void AtapiUninit()
{

```

-continued

```

        if(g_hWNASPI){
            FreeLibrary(g_hWNASPI);
            g_fnSendASPI32Command = NULL;
            g_fnGetASPI32SupportInfo = NULL;
            g_hWNASPI = NULL;
        }
    }
    DWORD AtapiSendCommand(BYTE *pCdb, BYTE *pbData, DWORD cbData)
    {
        PSRB_ExecSCSICmd pSrb =
        (PSRB_ExecSCSICmd)malloc(sizeof(SRB_ExecSCSICmd));
        if(pSrb == NULL)
            return FALSE;
        memset(pSrb, 0, sizeof(SRB_ExecSCSICmd));
        // SendCommand
        pSrb->SRB_Cmd = SC_EXEC_SCSI_CMD;
        pSrb->SRB_Status = 0xff;
        pSrb->SRB_HaId = AdapterID;
        if ((pCdb[0] == 0xA3) && (cbData != 0))
            pSrb->SRB_Flags = SRB_DIR_OUT;
        else if (pCdb[0] == 0x43)
            pSrb->SRB_Flags = SRB_DIR_IN;
        else
            pSrb->SRB_Flags = SRB_DIR_SCSI;
        pSrb->SRB_Target = TargetID;
        pSrb->SRB_BufLen = (DWORD)cbData;
        pSrb->SRB_BufPointer = pbData;
        pSrb->SRB_SenseLen = SENSE_LEN;
        pSrb->SRB_CDBLen = LEN_ATAPI_PACKET;
        pSrb->SRB_HaStat = 0xff;
        pSrb->SRB_TargStat = 0xff;
        memcpy(pSrb->CDBByte, pCdb, LEN_ATAPI_PACKET);
        DWORD ASPI32Status = (*g_fnSendASPI32Command)(pSrb);
        DWORD timeout = 600;
        while ((pSrb->SRB_Status == SS_PENDING) && (timeout > 0)){
            Sleep(10);
            timeout--;
        }
        if (pSrb->SRB_Status == SS_COMP){
            free(pSrb);
            return TRUE;
        }
        if ((pSrb->SRB_Status == SS_ERR) && (pSrb->SRB_TargStat == STATUS_CHKCOND)) {
            free(pSrb);
            return FALSE;
        }
    }
    BOOL AspiInquiryCmd(BYTE *pbInq, WORD cbData)
    {
        BYTE Cdb[LEN_ATAPI_PACKET];
        memset(Cdb, 0, LEN_ATAPI_PACKET);
        Cdb[0] = SCSI_INQUIRY;
        Cdb[4] = LEN_INQUIRY_DATA;
        PSRB_ExecSCSICmd pSrb =
        (PSRB_ExecSCSICmd)malloc(sizeof(SRB_ExecSCSICmd));
        if(pSrb == NULL)
            return FALSE;
        memset(pSrb, 0, sizeof(SRB_ExecSCSICmd));
        pSrb->SRB_Cmd = SC_EXEC_SCSI_CMD;
        pSrb->SRB_Status = 0xff;
        pSrb->SRB_HaId = AdapterID;
        pSrb->SRB_Flags = SRB_DIR_SCSI;
        pSrb->SRB_Target = TargetID;
        pSrb->SRB_BufLen = (DWORD)cbData;
        pSrb->SRB_BufPointer = pbInq;
        pSrb->SRB_SenseLen = SENSE_LEN;
        pSrb->SRB_CDBLen = 6;
        pSrb->SRB_HaStat = 0xff;
        pSrb->SRB_TargStat = 0xff;
        memcpy(pSrb->CDBByte, Cdb, LEN_ATAPI_PACKET);
        // Send Command
        DWORD ASPI32Status = (*g_fnSendASPI32Command)(pSrb);
        DWORD timeout = 600;
        /* Wait for pending status */
        while ((pSrb->SRB_Status == SS_PENDING) && (timeout > 0)){
            Sleep(10);
        }
    }

```

-continued

---

```

        timeout--;
    }
    /* Check Error Code */
    if (pSrb->SRB_Status == SS_COMP) {
        free(pSrb);
        return TRUE;
    }
    /* Set last device error */
    if ((pSrb->SRB_Status==SS_ERR) && (pSrb->SRB_TargStat==STATUS_CHKCOND))
    {
        free(pSrb);
        return FALSE;
    }
}

```

---

#### Alternate Embodiments

[0182] It should be noted that various permutations of serialization may be employed including, but not limited to a watermark, hologram, and any other type in substitution or combination with the BCA information without diverging from the spirit of the claimed invention.

#### [0183] Watermarking

[0184] Digital video data can be copied repeatedly without loss of quality. Therefore, copyright protection of video data is a more important issue in digital video delivery networks than it was with analog TV broadcast. One method of copyright protection is the addition of a "watermark" to the video signal which carries information about sender and receiver of the delivered video. Therefore, watermarking enables identification and tracing of different copies of video data. Applications are video distribution over the World-Wide Web (WWW), pay-per-view video broadcast, or labeling of video discs and video tapes. In the mentioned applications, the video data is usually stored in compressed format. Thus, the watermark must be embedded in the compressed domain. An approach for robust watermarking of MPEG-2 encoded video is presented in accordance with an alternate embodiment. The method is of much lower complexity than a complete decoding process followed by watermarking in the pixel domain and re-encoding. Although an existing MPEG-2 bitstream is partly altered, the method avoids drift by adding a drift compensation signal. The method has been implemented and the results confirm that a robust watermark can be embedded into MPEG-encoded video which can be used to securely transmit arbitrary binary information at a data rate of several bytes/second.

[0185] The method is easily applicable to other video coding schemes like MPEG-1, H.261, and H.263. Digital watermarks exist at a convergence point where creators and publishers of digitized multimedia content demand localized, secured identification and authentication of that content. Because existence of piracy is clearly a disincentive to the digital distribution of copyrighted works, establishment of responsibility for copies and derivative copies of such works is invaluable. In considering the various forms of multimedia content, whether "master," stereo, NTSC video, audio tape or compact disc, tolerance of quality degradation will vary with individuals and affect the underlying commercial and aesthetic value of the content.

[0186] It is desirable to tie copyrights, ownership rights, purchaser information or some combination of these and

related data to the content in such a manner that the content must undergo damage, and therefore a reduction in value, with subsequent, unauthorized distribution of the content, whether it be commercial or otherwise. Legal recognition and attitude shifts, which recognize the importance of digital watermarks as a necessary component of commercially distributed content (audio, video, game, etc.), will further the development of acceptable parameters for the exchange of such content by the various parties engaged in the commercial distribution of digital content.

[0187] These parties may include artists, engineers, studios, Internet access providers, publishers, agents, on-line service providers, aggregators of content for various forms of delivery, on-line retailers, individuals and parties that participate in the transfer of funds to arbitrate the actual delivery of content to intended parties. Since the characteristics of digital recordings vary widely, it is a worth while goal to provide tools to describe an optimized envelope of parameters for inserting, protecting and detecting digital watermarks in a given digitized sample (audio, video, virtual reality, etc.) stream. The optimization techniques described hereinafter make unauthorized removal of digital watermarks containing these parameters a significantly costly operation in terms of the absolute given projected economic gain from undetected commercial distribution. The optimization techniques, at the least, require significant damage to the content signal, as to make the unauthorized copy commercially worthless, if the digital watermark is removed, absent the use of extremely expensive tools. Presumably, the commercial value of some works will dictate some level of piracy not detectable in practice and deemed "reasonable" by rights holders given the overall economic return. For example, there will always be fake \$100 bills, LEVI jeans, and GUCCI bags given the sizes of the overall markets and potential economic returns for pirates in these markets-as there also will be unauthorized copies of works of music, operating systems (Windows 98, etc.), video and future multimedia goods. However, what differentiates the "digital marketplace" from the physical marketplace is the absence of any scheme that establishes responsibility and trust in the authenticity of goods. For physical products, corporations and governments that mark the goods and monitor manufacturing capacity and sales to estimate loss from piracy. There are also no reinforcing mechanisms, including legal, electronic, and informational campaigns to better educate consumers.

[0188] With the advent of digital video and digital video broadcasting, issues of copyright protection have become more important, since the duplication of digital video does not result in the inherent decrease in quality suffered by analog video. One method of copyright protection is the addition of a "watermark" to the video signal. The watermark is a digital code embedded in the bitstream of the digital video that typically identifies the copyright owner. The watermark, if applied to individual copies of the video, may also be used to identify the receiver of each copy. This processing identifies illegally reproduced copies and facilitates tracing back to the receiver from which they originated. For watermarking of digital video, a number of different characteristics of the watermark are desirable. First, the watermark should be embedded in such a way that it is imperceptible or barely perceptible to a viewer of the video. Secondly, the watermark should be such that it cannot be removed by intentional or unintentional operations on the digital video bitstream or on the decoded video without, at the same time, degrading the perceived quality of the video to the point of significantly reducing its commercial value (a characteristic referred to as "robustness"). Thirdly, since the video may be stored for broadcast in a compressed form (such as in a "video-on-demand" server), it is desirable to be able to incorporate the watermark into the bitstream without having to decode the signal first and to re-encode it after adding the watermark. This can be accomplished with the watermarking of digital still images, but the method used does not lend itself to digital video, due to the additional constraints which video signals present. Many digital video applications are "constant bit rate" applications, which do not tolerate increases in the bit rate of the transmitted bitstream. Even in those applications which are not restricted to a constant bit rate, unnecessary increases in the bit rate should be avoided, so as to preserve the real-time decodability of the video signal when transmitted over a channel having a given bandwidth. Thus, it is desirable that the addition of the watermark does not increase the bit rate of the video signal. Past watermarking techniques for digital video are limited to the watermarking of uncompressed video data. However, since video sequences are often stored in a compressed format (thereby saving on memory space), watermarking the signal in a way which uniquely identifies each receiver of the signal would require decoding of the signal, addition of the watermark, and recoding before the signal is transmitted. This clearly places a significant time and processing burden on the task of delivering the video sequence.

#### Hologram

[0189] Information exchange and transfer over a shared transmission channel present a challenge to the security of sensitive information. Internet and Intranet are two examples of such a shared information transmission channeling which many computers are connected with one another by local or wide area communication networks. It is therefore possible for any user or an intruder to intercept a package of sensitive data that is transmitted over the shared channel. In particular, the internet is a rapidly growing business forum and securing information transferred through its channels is becoming a major concern for transmitting proprietary information. Data encryption techniques can be used to increase the security in data exchange and transfer over a shared transmission channel. In its

simplest form, data encryption uses a "key" based on a particular algorithm to change the sequence of a package of data that contains a piece of confidential information ("plain text") so that the data is enciphered or "scrambled" into an form that appears to have no correlation with the embedded confidential information ("cipher text"). An unauthorized user, who does not have the knowledge of either the encryption method (e.g., the encryption algorithm) or the key formed based on the encryption method, cannot easily decode the information. An authorized user recovers the embedded information in the scrambled data by using a "key" that is constructed based on the encryption method. Therefore, even if the unauthorized user obtains the scrambled data, the knowledge of both of the encryption method and the particular key is needed to decrypt the confidential information embedded therein.

[0190] One well-known encryption system is the Data Encryption Standard (DES) adapted in 1977 by the National Bureau of Standards. This is a secret-key crypto system to exploit confusion and diffusion techniques, allowing acceptable security using key lengths as short as 64. The number of keys in crypto systems based on the DES can be as many as 512 keys with the current computational power. However, increased key lengths "cost" significant delays in transmitting and receiving the encoded information. Two main kinds of crypto systems are a symmetrical system, i.e., the private key system, and an asymmetrical system, i.e., the public-private key system. The DES symmetric crypto systems typically encrypt 64 bit blocks of plain text using a key length of 56 bits. The fundamental building block of DES (referred to as a round) is a single combination of a substitution followed by a permutation of the text, based on the key.

[0191] The plain text is encoded through 16 rounds of a function, which usually implement substitution, permutation, XOR and shift operations on subsets of the text and the key in such a way that every bit of the cipher text depends on every bit of the plain text and every bit of the key. This means that if a single bit of the cipher text is corrupted during transmission, the entire message may be lost. This is another weakness of DES-type block ciphers. In each round, a different subset of the elements from the key,  $K_i$ , are used to perform the encryption (hence  $K_1$  is applied during the first round, and  $K_i$  is applied during the  $i$ th round, etc.). An analogous algorithm is used to decrypt the cipher text, but the keys are now applied in reverse order, and the shift operations change from left to right. Given the complexity of the DES algorithm, the speed at which DES is encrypted is a function of the processor characteristics for both hardware and software implementations. For example, Digital Equipment Corporation makes a hardware DES chip which can encrypt and decrypt at a rate of 1 GBit/sec, or 15.6 million DES blocks per second. Software implementations are slower; for example, an IBM 3090 mainframe can encrypt 32,000 DES blocks per second.

[0192] Typical software implementation performances for microcomputers are listed in the Table 1 herein. TABLE 1 Encryption Rates using some microprocessors

Bus width (bits)	Processor Speed (MHz)	DES Blocks (per/sec)
8088	5.0	1,100
8088	10.0	2,200
8088	16.0	3,500
8088	25.0	5,000
8088	33.0	6,600
8088	40.0	8,000
8088	50.0	10,000
8088	66.0	13,200
8088	80.0	16,000
8088	100.0	20,000
8088	133.0	26,400
8088	166.0	33,000
8088	200.0	40,000
8088	266.0	52,800
8088	333.0	66,000
8088	400.0	80,000
8088	500.0	100,000
8088	666.0	132,000
8088	800.0	160,000
8088	1000.0	200,000
8088	1333.0	264,000
8088	1666.0	330,000
8088	2000.0	400,000
8088	2666.0	528,000
8088	3333.0	660,000
8088	4000.0	800,000
8088	5000.0	1,000,000
8088	6666.0	1,320,000
8088	8000.0	1,600,000
8088	10000.0	2,000,000
8088	13333.0	2,640,000
8088	16666.0	3,300,000
8088	20000.0	4,000,000
8088	26666.0	5,280,000
8088	33333.0	6,600,000
8088	40000.0	8,000,000
8088	50000.0	10,000,000
8088	66666.0	13,200,000
8088	80000.0	16,000,000
8088	100000.0	20,000,000
8088	133333.0	26,400,000
8088	166666.0	33,000,000
8088	200000.0	40,000,000
8088	266666.0	52,800,000
8088	333333.0	66,000,000
8088	400000.0	80,000,000
8088	500000.0	100,000,000
8088	666666.0	132,000,000
8088	800000.0	160,000,000
8088	1000000.0	200,000,000
8088	1333333.0	264,000,000
8088	1666666.0	330,000,000
8088	2000000.0	400,000,000
8088	2666666.0	528,000,000
8088	3333333.0	660,000,000
8088	4000000.0	800,000,000
8088	5000000.0	1,000,000,000
8088	6666666.0	1,320,000,000
8088	8000000.0	1,600,000,000
8088	10000000.0	2,000,000,000
8088	13333333.0	2,640,000,000
8088	16666666.0	3,300,000,000
8088	20000000.0	4,000,000,000
8088	26666666.0	5,280,000,000
8088	33333333.0	6,600,000,000
8088	40000000.0	8,000,000,000
8088	50000000.0	10,000,000,000
8088	66666666.0	13,200,000,000
8088	80000000.0	16,000,000,000
8088	100000000.0	20,000,000,000
8088	133333333.0	26,400,000,000
8088	166666666.0	33,000,000,000
8088	200000000.0	40,000,000,000
8088	266666666.0	52,800,000,000
8088	333333333.0	66,000,000,000
8088	400000000.0	80,000,000,000
8088	500000000.0	100,000,000,000
8088	666666666.0	132,000,000,000
8088	800000000.0	160,000,000,000
8088	1000000000.0	200,000,000,000
8088	1333333333.0	264,000,000,000
8088	1666666666.0	330,000,000,000
8088	2000000000.0	400,000,000,000
8088	2666666666.0	528,000,000,000
8088	3333333333.0	660,000,000,000
8088	4000000000.0	800,000,000,000
8088	5000000000.0	1,000,000,000,000
8088	6666666666.0	1,320,000,000,000
8088	8000000000.0	1,600,000,000,000
8088	10000000000.0	2,000,000,000,000
8088	13333333333.0	2,640,000,000,000
8088	16666666666.0	3,300,000,000,000
8088	20000000000.0	4,000,000,000,000
8088	26666666666.0	5,280,000,000,000
8088	33333333333.0	6,600,000,000,000
8088	40000000000.0	8,000,000,000,000
8088	50000000000.0	10,000,000,000,000
8088	66666666666.0	13,200,000,000,000
8088	80000000000.0	16,000,000,000,000
8088	100000000000.0	20,000,000,000,000
8088	133333333333.0	26,400,000,000,000
8088	166666666666.0	33,000,000,000,000
8088	200000000000.0	40,000,000,000,000
8088	266666666666.0	52,800,000,000,000
8088	333333333333.0	66,000,000,000,000
8088	400000000000.0	80,000,000,000,000
8088	500000000000.0	100,000,000,000,000
8088	666666666666.0	132,000,000,000,000
8088	800000000000.0	160,000,000,000,000
8088	1000000000000.0	200,000,000,000,000
8088	1333333333333.0	264,000,000,000,000
8088	1666666666666.0	330,000,000,000,000
8088	2000000000000.0	400,000,000,000,000
8088	2666666666666.0	528,000,000,000,000
8088	3333333333333.0	660,000,000,000,000
8088	4000000000000.0	800,000,000,000,000
8088	5000000000000.0	1,000,000,000,000,000
8088	6666666666666.0	1,320,000,000,000,000
8088	8000000000000.0	1,600,000,000,000,000
8088	10000000000000.0	2,000,000,000,000,000
8088	13333333333333.0	2,640,000,000,000,000
8088	16666666666666.0	3,300,000,000,000,000
8088	20000000000000.0	4,000,000,000,000,000
8088	26666666666666.0	5,280,000,000,000,000
8088	33333333333333.0	6,600,000,000,000,000
8088	40000000000000.0	8,000,000,000,000,000
8088	50000000000000.0	10,000,000,000,000,000
8088	66666666666666.0	13,200,000,000,000,000
8088	80000000000000.0	16,000,000,000,000,000
8088	100000000000000.0	20,000,000,000,000,000
8088	133333333333333.0	26,400,000,000,000,000
8088	166666666666666.0	33,000,000,000,000,000
8088	200000000000000.0	40,000,000,000,000,000
8088	266666666666666.0	52,800,000,000,000,000
8088	333333333333333.0	66,000,000,000,000,000
8088	400000000000000.0	80,000,000,000,000,000
8088	500000000000000.0	100,000,000,000,000,000
8088	666666666666666.0	132,000,000,000,000,000
8088	800000000000000.0	160,000,000,000,000,000
8088	1000000000000000.0	200,000,000,000,000,000
8088	1333333333333333.0	2,640,000,000,000,000,000
8088	1666666666666666.0	3,300,000,000,000,000,000
8088	2000000000000000.0	4,000,000,000,000,000,000
8088	2666666666666666.0	5,280,000,000,000,000,000
8088	3333333333333333.0	6,600,000,000,000,000,000
8088	4000000000000000.0	8,000,000,000,000,000,000
8088	5000000000000000.0	10,000,000,000,000,000,000
8088	6666666666666666.0	13,200,000,000,000,000,000
8088	8000000000000000.0	16,000,000,000,000,000,000
8088	10000000000000000.0	20,000,000,000,000,000,000
8088	13333333333333333.0	26,400,000,000,000,000,000
8088	16666666666666666.0	33,000,000,000,000,000,000
8088	20000000000000000.0	40,000,000,000,000,000,000
8088	26666666666666666.0	52,800,000,000,000,000,000
8088	33333333333333333.0	66,000,000,000,000,000,000
8088	40000000000000000.0	80,000,000,000,000,000,000
8088	50000000000000000.0	100,000,000,000,000,000,000
8088	66666666666666666.0	132,000,000,000,000,000,000
8088	80000000000000000.0	160,000,000,000,000,000,000
8088	100000000000000000.0	200,000,000,000,000,000,000
8088	133333333333333333.0	2,640,000,000,000,000,000,000
8088	166666666666666666.0	3,300,000,000,000,000,000,000
8088	200000000000000000.0	4,000,000,000,000,000,000,000
8088	266666666666666666.0	5,280,000,000,000,000,000,000
8088	333333333333333333.0	6,600,000,000,000,000,000,000
8088	400000000000000000.0	8,000,000,000,000,000,000,000
8088	500000000000000000.0	10,000,000,000,000,000,000,000
8088	666666666666666666.0	13,200,000,000,000,000,000,000
8088	800000000000000000.0	16,000,000,000,000,000,000,000
8088	1000000000000000000.0	20,000,000,000,000,000,000,000
8088	1333333333333333333.0	26,400,000,000,000,000,000,000
8088	1666666666666666666.0	33,000,000,000,000,000,000,000
8088	2000000000000000000.0	40,000,000,000,000,000,000,000
8088	2666666666666666666.0	52,800,000,000,000,000,000,000
8088	3333333333333333333.0	66,000,000,000,000,000,000,000
8088	4000000000000000000.0	80,000,000,000,000,000,000,000
8088	5000000000000000000.0	100,000,000,000,000,000,000,000
8088	6666666666666666666.0	132,000,000,000,000,000,000,000
8088	8000000000000000000.0	160,000,000,000,000,000,000,000
8088	10000000000000000000.0	200,000,000,000,000,000,000,000
8088	13333333333333333333.0	2,640,000,000,000,0



RSA Public Key Crypto system available from the RSA Data Security in California RSA is an asymmetric crypto system in which two different keys are used: a public key to encrypt the plain text and a private key to decrypt the cipher text. The hardware implementations of RSA are usually about 1000 to 10,000 times slower than a hardware implementation of DES. In software implementations, RSA is generally about 100 times slower than DES. These numbers will improve as technology advances, but the processing speed of RSA will be difficult to approach the speed of a symmetric crypto system. Consequently, RSA is generally not viewed as a replacement for DES or any other fast bulk encryption algorithm. Instead, RSA is often used for secure key exchange without prior exchange of secrets. Hence a long message is encrypted with DES.

[0193] The message is sent with its DES key encrypted via RSA public key encryption. Many other prior-art encryption systems are variations of the DES-type encryption. Generally, it is suspected that given the advanced state of computational processors, DES may no longer be safe against a brute-force attack, so alternatives have actively been sought since the late 1980's. In response to this need, several alternatives have been developed and are thought to be competitive with DES in terms of the level of security provided. Examples of these systems include the following encryption methods.

[0194] (1) Triple DES. This is a variation of DES where the plain text is encrypted with the DES algorithm by three different keys in succession. This is commonly accepted to be equivalent to increasing the size of the DES key to 112 bits. Triple encryption of the plain text is the current method of dealing with misgivings about DES's security, but this is clearly done at the expense of the throughput rate for encrypting and decrypting messages.

[0195] (2) REDOC, a block algorithm which has a 20 byte (160-bit key) and that operates on an 80 bit block. All of the manipulations, (i.e. substitutions, permutations, and key XOR's) are performed on bytes, which makes it more efficient in software than DES whose initial and final permutations are difficult to efficiently implement in software. In addition, the 160 bit key usually makes this algorithm very secure.

[0196] (3) Khufu is a recently proposed 64 bit block cipher, which calls for a 512-bit key, and leaves the number of rounds open (either 16, 24, or 32). Because of the large key, and the potentially expanded number of rounds, the security of this algorithm is expected to be very high. However, increasing the number of rounds has the disadvantage of slowing the rate at which data can be encrypted.

[0197] (4) IDEA is a 64-bit block cipher that utilizes a 128 bit key. It usually utilizes three basic operations, XOR, addition modulo 2 sup 16, and multiplication modulo 2 sup 16. The algorithm typically operates on 16-bit sub-blocks, which makes it efficient, even on 16 bit processors. Its current software implementations are about as fast as DES. In view of the limitations and disadvantages of the various prior-art encryption systems, the inventors of the present invention developed a new crypto system

based on optical phase modulation and a corresponding implementation interface between a user computer and the network. An embodiment in accordance with the present invention can exchange any of these methods for enciphering information embedded in a digital bit stream prior to digitization and transmission over a shared network such as the internet.

[0198] A holographic de-scrambler can be used at the receiving end in accordance with a preferred embodiment by an authorized user to decipher the information. One of many advantages of the present invention is the potential to achieve high rate of encryption/decryption (e.g., larger than 1 Gbit/s) as optical fiber networks of high data rates (e.g., larger than 2.4 Gbit/s) become more common. In one of several preferred embodiments of the present invention, a package of digital data is first imprinted on a carrier light beam. This is done by using a two-dimensional spatial light modulator. The phase of the data-bearing optical waveform is subsequently distorted by a phase-scrambling medium. Next, the data-bearing optical waveform with distorted phase is used to form an optical hologram with a reference beam. The hologram is then converted into electronic signals which are sent to its destination in digital form over a shared transmission channel. At the destination where the scrambled data is received, the hologram is displayed in a spatial light modulator and a conjugate reconstruction thereof is performed to generate a conjugate of the data-bearing signal waveform with distorted phase. A holographic medium having information indicative of the phase-scrambling medium is used to unscramble the phase and the embedded data is retrieved from the conjugate reconstruction optical waveform by using a light detector array such as a CCD array. One aspect of the present invention is to achieve optical encryption keys up to and greater than 10 sup 6 keys to enhance the security.

[0199] This is a difficult implementation for many prior art systems. Such a large number of encryption keys is possible because of the unique optical analog technique in accordance with the present invention. It is another aspect of the present invention to insure fast enciphering and deciphering of a large encryption key that are rarely obtainable with the prior-art systems. The preferred embodiments implement this by using the high-speed optical reconstruction of a data-bearing hologram and the capability of parallel processing of optical data processing devices. It is yet another aspect of the present invention to increase the confidentiality of the encryption schemes by using unconventional analog-based enciphering and deciphering of digital data. This aspect is particularly advantageous in view of the current lack of a theoretical foundation for decrypting analog-based encryption. A brute force attacked encryption based on algorithm techniques is nearly impossible for invading the cryptography systems in accordance with the present invention. It is yet another aspect of the present invention to use optical phase information in a nonobvious way to encipher and decipher digital data. It is yet another aspect of the present invention that optical holographic techniques are used in both enciphering and deciphering processes to further enhance the confidentiality of the encryption systems in accordance with the present invention. It is yet another aspect of the present invention that the phase conjugate reconstruction of data-bearing holograms are implemented in preferred embodiments to ensure the high fidelity of the

analog deciphering process. It is yet another aspect of the present invention to integrate optical processing technology, hardware encryption, opto-electronic interfacing, and high-fidelity and fast-speed digital signal transmission to form a highly secure, fast and versatile encryption system that works independent of the transmission media utilized. It is still another aspect of the present invention to complete the encryption or decryption process in a single step, instead of the 16 rounds of complex computations typically found in most symmetric encryption schemes. In the optical encryption systems in accordance with the present invention, the encrypting speed is usually not limited by the size of the encryption key, but rather by the system speed in converting between the electronic-to-optical and the optical-to-electronic information modes.

**[0200] Other Serialization**

**[0201]** In the past, merchants have unsuccessfully employed various methods in an attempt to track and identify their inventory. Engraving, stamping, painting, and marking are several methods that merchants have employed. Due to practical problems, those methods are not effectively applicable to the CD multimedia rental industry.

**[0202]** As is known in the art and industry of compact disc multimedia, graphical information identifying the program title and author of a recording is ordinarily placed on the top surface of a CD. Digital data is stored on or just below that top surface. In particular, digital data is stored immediately below such graphical information between the top surface and the bottom surface of the CD. The bottom surface of the CD is comprised of a section of clear material through which, in accessing the data, a laser beam from a compact disc player radiates upward.

**[0203]** The digital data is delicate and can easily be damaged during processes typically used to identify merchandise, which include engraving, stamping, or marking. As stated above, the digital data is closer to the top surface of the CD than it is to the bottom surface. Although the top surface of a CD usually contains graphical information applied by silk screening that partially protects the digital data from damage, the silk screened layer is thinner and more fragile than the bottom surface of a CD which comprises clear material. Thus, there is a greater need to protect the top surface of the CD and the digital data close to it from physical damage such as scratching.

**[0204]** Engraving may be used to identify merchandise. Engraving CDs with identification markings is problematic since engraving is often attempted on the top surface of the CD and such engraving could interfere with the digital data next to it. Moreover, even if engraving is attempted on the bottom surface of a CD where it is less likely that digital data will be damaged, the data may still be damaged during engraving due to the pressure required to be placed on the top of the CD to hold it in place and the heat that may result from such engraving. In addition, engraving may be undesirable since it is a relatively labor intensive and costly process, especially in high volume situations.

**[0205]** Thus, merchants have considered other less invasive methods of identification such as, for example, painting. Painting also fails to provide an effective means of identification or security due to the labor required, the cost required, and the inherent unreliability of the process given

the ease with which a person can duplicate such painting. Moreover, painting may pose other problems since harm to the digital data must be avoided.

**[0206]** Still another option of identifying and securing inventory is the use of ordinary adhesive stickers. Such stickers do not provide an effective means of identification due to the ease with which such stickers can be removed and reattached to similar looking items without a means of clearly indicating any tampering with the sticker. In addition, such stickers may be difficult to manually apply to CDs (since any sticker should be precisely centered on the CD) in the absence of an applicator workstation such as the one disclosed herein. In addition, such stickers may be easy to duplicate.

**[0207]** Magnetic-type EAS systems are widely used to inhibit the theft of merchandise such as clothing, books, cassettes and compact disks. Electronic article surveillance (EAS) systems are often used to prevent unauthorized removal of articles from a protected area, such as a library or retail store. An EAS system usually includes an interrogation zone or corridor located near the exit of the protected area and markers or tags attached to the articles to be protected. EAS systems have been based on magnetic, RF, microwave and magneto-restrictive technologies. Regardless of the particular technology involved, the EAS systems are designed such that the tag will produce some characteristic response when exposed to an interrogating signal in the corridor. Detection of this characteristic response indicates the presence of a sensitized tag in the corridor. The EAS system then initiates some appropriate security action, such as sounding an audible alarm, locking an exit gate, etc. To allow authorized removal of articles from the protected area, tags that are either permanently or reversibly deactivatable (i.e., dual status tags) are often used.

**[0208]** Although EAS markers have been in common use for the theft protection of optically recorded media such as compact disks and CD-ROM's, the markers have generally been adapted for attachment to the packages containing new compact disks and have been poorly suited for direct attachment to the compact disk itself for libraries and other institutions that repeatedly check compact disks in and out to accommodate the needs of customers and clients, effective inventory control would prefer that EAS markers are attached to the compact disk.

**[0209]** Some markers for direct attachment to compact disks have been developed. One, available as "DCD-1" from Minnesota Mining and Manufacturing Company, St. Paul, Minn., is a single marker strip and security overlay which are attached to a compact disk. However, this marker adversely affects the mechanical balance of the disk, which can adversely affect the operation of modern high rotation speed CD-ROM drives, CD players, and other optically recorded media playback equipment which require that the media be mechanically balanced for proper operation. Another product, "CD-Guard", available from Knogo North America, Inc., Hauppauge, Long Island, N.Y., suffers the same mechanical balance drawback. An optical information storage disk comprising an embedded, generally annular, dual-status EAS marker is described in coassigned U.S. Pat. No. 5,347,508.

## Other Media

[0210] It should be noted that the principles of the present invention may be applied to other types of media beyond the electronic storage medium discussed hereinabove. As a disk-like recording medium (referred to hereinafter as an optical disk) on and from which an information signal is recorded and reproduced by laser beam, there are now commercially available a so-called compact disc with audio data recorded therein, a CD-ROM in which computer data is recorded, a write once optical disk on which an information signal can be recorded once and a recordable optical disk in which an information signal can be reproduced, recorded and erased.

[0211] The read-only optical disk such as a compact disc or CD-ROM has tracks on which irregular patterns, i.e., phase pits are concentrically or spirally formed on the basis of a recorded information signal formed on one surface thereof. Specifically, the read-only optical disk is composed of a disk base plate made of a transparent synthetic resin such as polycarbonate or PMMA (polymethyl methacrylate), a reflection film made of a metal such as Al or Au formed so as to cover phase pits formed on one surface of the disk base plate and a protection layer formed so as to cover the reflection film in order to protect the reflection film.

[0212] When an information signal is reproduced from the read-only optical disk, laser beam from a laser light source is converged by an objective lens and irradiated on the read-only optical disk from the disk base plate side. Reflected light flux modulated by the phase pits on the optical disk is detected by a photodetector, for example, and converted into a detected signal having a signal level corresponding to an intensity of reflected light flux, thereby allowing a reproduced signal of the information signal recorded on the read-only optical disk to be obtained.

[0213] While the read-only optical disk can provide mass-produced products (optical disks) inexpensively on the market, it is not suitable for products of small demand. For this end, write once optical disks are prepared for optical disk products of small demand and a variety of data can be provided to the user easily. As write once optical disks, there are available a write once optical disk of recording system using physical chemical change of pigment, a write once optical disk of a single layer hole forming recording system, a write once optical disk of multi-layer hole forming recording system, a write once optical disk of phase-change recording system and a write once optical disk of bubble-foaming system. Upon reproduction, in a manner similar to the read-only optical disk, a laser beam (having a weak reproduction laser power) from a laser light source is irradiated on the disk from the disk base plate side under the condition that the laser beam is converged by an objective lens. Then, reflected light flux that is modulated by previously-recorded pits is detected by a photodetector and the detected signal is converted into a detected signal having a signal level corresponding to an intensity of a reflected light bundle, thereby obtaining a reproduced signal of an information signal recorded on the write once optical disk.

[0214] When an information signal is recorded on the above write once optical disk, a laser beam (having a strong recording laser power) from a laser light source is irradiated on the optical disk from the disk base plate side under the condition that the laser beam is converged by an objective

lens. Then, the power of the laser beam is turned on and off by modulating the laser beam in response to an information signal and pits (pits substantially similar to those recorded on the read-only optical disk) corresponding to the information signal are formed along recording tracks of the optical disk. Specifically, in the case of the single layer hole forming recording system, a hole is formed on the recording track at an area irradiated with a strong laser beam and this hole is recorded as a pit. In the case of a multi-layer hole forming recording system, a hole is formed on the recording track at an area irradiated with a strong laser beam, e.g., the film of the first layer and the hole on the first layer are recorded as a pit.

[0215] In the case of the phase change recording system, a portion of the recording track irradiated with a strong laser beam is changed from the amorphous state to the crystal state and the portion that was changed to the crystal state is recorded as a pit. In the case of the bubble foaming recording system, of the recording tracks, a recording layer of the portion irradiated with a strong laser beam is upheaved and the upheaved portion is recorded as a pit.

[0216] In the write once optical disk, in particular, a guide groove is formed (pre-groove portion) to allow tracking control of laser beam. An end face opposing the pre-groove is formed as a sine wave shape (generally referred to as a wobble shape) having a predetermined amplitude and a predetermined period along the track. When this wobble shape is optically detected by laser beam, it is possible to obtain a wobble signal serving as absolute time information. The wobble signal is used to control the system of the recording and reproducing apparatus and, in particular, the timing information for recording pits on the optical disk. Further, the wobble signal is used to servo-control an optical disk rotating and driving means, e.g., a spindle motor. According to the servo control operation, the rotational speed of the spindle motor is controlled such that the period of the wobble signal becomes constant.

[0217] The above write once optical disk is generally of a groove recording system where pits are recorded on the pre-groove portion. When information data that is to be recorded on the write once optical disk is recorded, a target position is synchronously searched based on the period of the wobble signal obtained by optically detecting the wobble shape formed on the pre-groove portion. When the target position is detected, the above information data that is to be recorded on the write once optical disk is recorded on the target position according to a predetermined format.

[0218] On the other hand, upon reproduction, a target position is searched as described above. When the target position is detected, based on a frame synchronizing signal inserted into the data to be recorded on the write once optical disk, 2 kilobytes of data, for example, are sequentially read out, thereby reproducing recorded data.

[0219] Since the read-only optical disk and the write once optical disk are the same in reproduction principle as described above, even when the write once optical disk is loaded onto a reproducing apparatus which reproduces an information signal from the read-only optical disk, data recorded on the write once optical disk can be reproduced without distinction of the read-only optical disk.

[0220] In addition, the write once optical disk has a feature that allows a number of optical disks to be easily produced

by relatively simple equipment. For this reason, there is the risk that the write once optical disk will be illegally copied (illegal copy). Specifically, initially, there is a computer system wherein a reproducing apparatus for reproducing an information signal from a read-only optical disk is connected to one external input and output terminal of a personal computer used by the end user. For example, and an external storage device for recording and reproducing an information signal on and from the write once optical disk is connected to another external input and output terminal. Then, recorded data that had been read out from the read-only optical disk by the reproducing apparatus are all written in the write once optical disk by the external storage device, thereby producing a pirate edition of the read-only optical disk.

[0221] In this case, if the read-only optical-disk is a CD-ROM where computer data (including computer program) are recorded, then a pirate edition of game software can be easily produced. If the read-only optical disk is a compact disc (CD) where music information are recorded, then it becomes possible to easily produce a pirate edition of the compact disc.

[0222] Since computer programs are copyrighted material protected by copyright, copies—except those made by the regular user, i.e., registered users who accepted the software license agreement (software license agreement)—for backup or copies for the hard disk are illegal.

[0223] Further, copy for thoroughly copying recorded data on the CD-ROM which is a copyright material to the write once optical disk for the purpose of action of concession in distribution is also illegal and such illegal action for obtaining unfair profit should be prevented.

[0224] Furthermore, an act wherein a regular user makes a free distribution for those who are not regular users in an enterprise or CAI (Computer Assisted Instruction) is regarded as serious.

[0225] At present, there are a variety of proposed methods for copy protection many of which have been reduced to practice. On the other hand, a software (program or the like) called "copy tool" used in removing copy protection is now commercially available. Short of the user's own conscience, there is currently no other way to prevent the illegal copying of recorded data

[0226] In view of the aforesaid, it is an object of the present invention to provide a data recording method wherein an illegal copy between disk-like recording mediums can be effectively protected even against a copy tool and in which copyrighted material (recorded data) recorded on the disk-like recording medium can be protected.

[0227] Interactive productions allow a user of a computer system to interact with movies, video or other displayed images while the images are being updated at a rapid rate. The purpose of these productions is to present useful information, educate or entertain the user. The ultimate goal of interactive technology is to make the user feel as though they are interacting with images on the screen so that, for example, characters or objects in a drama react to the users actions. The user's actions can affect characters, objects or other images on the display screen and change the course of the storyline.

[0228] One method for providing a high degree of interaction is to make the production completely computer generated. This means that the computer models a three dimensional world and calculates and displays the orientation of figures and objects on the screen. However, this approach is limited by today's technology because the computing power to filly calculate and render lifelike images, especially human figures, at resolutions approaching television quality in real time at video or film refresh rates is beyond the current technology for mass-marketed systems.

[0229] A different approach is to prerecord video, film or computer generated image sequences and play the prerecorded images, or frames, back at high speed. This achieves the resolution of television, or better, and is sufficiently lifelike to create a level of believability comparable to television. However, in this approach the user has a very limited amount of interactivity with the production since the user's ability to affect the story is limited to the small number of different "paths" of prerecorded image sequences that are branched to at predetermined decision points in the video or animation sequence. The use of any prerecorded sequences of images that are played back so as to achieve animation while allowing a user to interact with the images is referred to broadly here as "interactive video."

[0230] Interactive video productions typically use a compact disc read-only memory (CD-ROM) disc to store the images and a CD-ROM drive to retrieve images during playback. The CD-ROM disc stores information in a concentric spiral on optical media and is "read" or played back with a CD-ROM drive that uses a "read head" with a laser beam. The big problem with CD-ROM based interactive production is the break in continuity due to delays of about a half-second or more required to locate a desired branch path that is different from the current path that the drive's read head is tracking. Another problem is that CD-ROM based interactive video productions are severely limited in the number and types of ways that a user may interact with the video.

[0231] The length of time to access a different video path ("access time" or "seek time") depends upon the location of the different video path with respect to the current placement of the CD-ROM drive's read head. In order to access a given video sequence, a computer controller looks up the location of the sequence in an index and instructs the CD-ROM drive to access the new sequence by moving the read head to the beginning of the new sequence on the disc. Since the read head is moved by a mechanical mechanism it takes a comparatively long time to reposition the read head to a new point on the track to access the different video path.

[0232] The prior art uses caches to try to improve the performance of accessing data in a CD-ROM. The cache can be in the CD-ROM drive, in an interface card between the processor and the drive, in the memory of the computer system controlled by software or even on a hard disk or other storage medium. However, these caches only provide marginal improvement in access times where video is concerned because of the relatively small sizes of the caches compared to the data rate of the information coming off of the CD-ROM. Also, when a different path is branched to the information in the caches is usually useless since they don't contain the new data. The caches must be "purged" and loaded with new information.

[0233] While current CD-ROM drives are not adequate to provide sufficient interactivity in interactive video productions, they represent a huge installed base since hundreds of thousands have already been sold to consumers. Therefore, a system which eliminates the access time in CD-ROM based interactive videos without requiring modification of existing CD-ROM drives is desired.

[0234] Conventionally, a so-called LD (Laser Disk) and a so-called CD (Compact Disk) are generalized as optical disks, on which information such as video information, audio information and the like is recorded. On the LD or the like, the video information and the audio information are recorded together with time information indicating a time at which each information is to be reproduced with respect to a reproduction start position, which each LD or the like has, as a standard position. Thus, other than a general normal reproduction to reproduce the recorded information in the order of recording, various special reproductions are possible, such as a reproduction to extract and listen to an only desirable music out of a plurality of recorded musics, a reproduction to listen to the recorded musics in a random order and so on, in case of the CD, for example.

[0235] However, there is a problem that, according to the above mentioned LD or the like, a so-called interactive and variegated reproduction is not possible in which the audience can have a plurality of selection branches as for the video or audio information to be displayed or sound-outputted and in which the audience can select them to watch or listen to it.

[0236] Namely, for example, in case of giving audience to a foreign movie on the LD, it is not possible to select one of languages to be used for a subtitle (caption) displayed on the picture plane (e.g., select one of the subtitle in Japanese and the subtitle in the original language) so as to display the subtitle in the selected language, or, in case of giving audience to a music recorded on the CD, it is not possible to select one of sound voices of the music (e.g., select one of the English lyric and the Japanese lyric).

[0237] On the other hand, various proposals and developments are being made as for the DVD, as an optical disk in which the memory capacity is improved by about ten times without changing the size of the optical disk itself as compared with the aforementioned conventional CD. With respect to this DVD, if a plurality of subtitles in various languages or a plurality of voice sounds in various languages are recorded, the above mentioned interactive and variegated reproduction is possible as the audience selects one of them.

[0238] However, the information amount of the audio information or music information becomes enormous if the audio or voice sounds in various languages or the music in various types are recorded on the above mentioned DVD. At this time, if the information is not recorded in an appropriate recording form, the process for searching the audio information etc. to be reproduced becomes complicated, and a case where the audio sound or music sound etc. is interrupted in the middle of the reproduction due to the time required to search the audio information etc. may happen at the time of reproduction, which is a problem.

[0239] According to an embodiment of the invention, information encoded in the BCA can be used to track how

the DVD is being used. When DVD disks are distributed, a distinction is made between DVDs intended for rental and those intended for sale. For example, a merchant such as BLOCKBUSTER VIDEO will pay a different (generally higher) price for videos which are to be used for rental to the public than they pay for videos which are intended to be sold to the public. Previously, determining whether DVDs are being distributed in their contractually predetermined manner has been difficult. Once a DVD has been delivered to a retail merchant the manufacturer or distributor has generally lost practical control of the product.

[0240] With reference to FIG. 24, the present invention provides an identifier 2402 embodied within the BCA. This identifier 2402 includes a usage code 2404, which indicates whether the DVD was distributed for rental or retail sale. To use the DVD the user inserts it into his or her client device 510, which as discussed earlier can be in the form of a computer or a set top box. Software on the client device reads the identification code 2402 and activates a browser on the client device 510 to send a message 2406 to a server 2408 via the Internet. The message sent to the server includes the DVD identifier 2402 (including the usage code 2404), and also includes a client device identification 2410. Upon receiving the message 2406 the server 2408 is able to identify the client device 510 on which the DVD 505 is operating. The server contains a database 2412 which includes identifiers for various DVDs and also includes information associated with those DVDs such as identities of client devices on which those DVDs were operated. The server 2408 compares the DVD identifier 2402 and the client identification with the database 2412, and if there is no record of that client using that DVD 505 then the combination is added to the database. The manner in which the DVD 505 is supposed to be used (i.e. rental or sale) is also recorded in the database. As mentioned, the DVD identifier 2402 includes an indication of whether the DVD 505 is meant for rental or retail sale. If the DVD 505 is meant for sale, but the database shows that it is being used on many different client devices then a presumption can be made that the DVD 505 is being improperly used as a rental. Appropriate actions can then be taken, such as demanding an accounting from the retail vendor or requesting addition money for the DVD 505.

[0241] In still another embodiment, the identifier may not include an indication of how the DVD 505 is meant to be used, but the database 2412 includes such data. In use, upon inputting the DVD 505 into the client device 510, a message is delivered from the client device 510 to the server 2408 and the identifier 2402 and client identification 2410 are compared with or added to the database 2412. Since the database 2412 includes an indication of how the DVD was intended to be used, when a DVD recorded as a sale DVD is found to be used on many different client devices, it can again be presumed that the DVD is being improperly distributed.

[0242] With reference now to FIG. 25, a process 2500 for tracking DVD usage is described. The process begins with a step 2502 of inserting the DVD 505 into the client device 510. Then, in a step 2504 the identifier is read off of the DVD. In a step 2506, the browser is automatically activated on the client device 510, and in a step 2508 a message transmitted to the server. The message includes an indicia corresponding to the identifier. In a step 2510, the message and identifier are received by the server 2408. Thereafter, in

a step 2512, the identity of the client device is determined and in a step 2514 the intended usage of the DVD is determined. The intended usage of the DVD can be determined either by a usage code contained in the identifier 2402 or by a record in the database 2412. Thereafter, in a step 2516, a determination is made as to whether the DVD is being used properly or not (i.e. whether the DVD is being improperly rented). This determination can be made by comparing the client identifier 2410 with the database to determine whether a DVD which was intended for retail sale is being used on many different client devices 510.

[0243] In a similar implementation of the invention, the DVD identifier can be used to prevent a stolen DVD from being used. In the event the DVD is stolen, an indication of the theft is stored in the database 2412. If an attempt is made to play the DVD, the message 2406 will be transmitted to the server 2408 along with the DVD identifier. The server will retrieve information from the database regarding that particular DVD and discover that the DVD has been stolen. The server will then block the play of the DVD as earlier described.

[0244] Similarly, the present invention allows control of the usage of a rented DVD. For example, a particular DVD can be rented under terms of a rental agreement which only allow the DVD to be played a predetermined number of times, most likely once. An indication of this limitation can be stored in the database 2412. Each time an attempt is made to play the DVD the message 2406 will alert the server that the DVD is being played. The server keeps a tally of the number of times the DVD is played. When the number of designated plays has been exceeded, the server blocks play of the DVD. When the DVD is returned by the customer to the rental establishment, the tally in the database 2412 is reset to zero.

[0245] In another similar implementation of the invention, the rental agreement may have terms which only allow the DVD to be played on a single machine. The first time the rental customer plays the DVD the message 2406 will provide the server 2408 with both the identity of the DVD 2402 as well as the identity of the client device 2410. The identity of the client is stored in the database 2412 in a field associated with that DVD as identified by the DVD identifier 2402. If an attempt is made to use the DVD on a device other than the first identified device, then play will be blocked. When the rental client returns the video to the rental establishment, the database 2412 will be reset to allow the DVD to be played on another device.

[0246] With reference to FIG. 26, an embodiment of the invention addresses the issues presented in the "coupons" section above. This embodiment provides a method 2600 for issuing and redeeming coupons that avoids fraud and beneficially facilitates the compilation and retrieval of useful customer data for use in marketing efforts. In an operation 2602, the DVD disk is provided to a consumer with an associated coupon. This coupon can be, for example, a coupon for a discounted price on rental or purchase of other DVDs, coupons for food or beverages or some other promotion. The coupon can be recorded onto the DVD itself 505 or can be stored in the database 2412 (FIG. 24) on the server 2408. Then in an operation 2604, the user chooses to redeem the coupon, causing a message to be delivered to the server 2408 indicating that the coupon has been redeemed.

Then in an operation 2606, the database 2412 is checked to determine whether the coupon has already been redeemed. If the coupon has not been redeemed, then in an operation 2608 redemption is allowed. Then in an operation 2610, a record of the redemption is added to the database 2412, cross-referenced with the relevant DVD identifier and Client information. If the coupon has already been redeemed, then in an operation 2612 the attempted redemption is blocked or disallowed. It will be appreciated that this embodiment of the invention allows coupon redemption to be limited to any pre-selected number of coupons per disc. By cross-referencing the coupon with the database 2412, valuable customer data can be compiled for easy retrieval. This data can then be used to focus marketing efforts more effectively.

[0247] In a similar manner, the present invention provides for a promotional marketing effort in the form of a lottery. The DVD identifier 2402 can be used to provide an award to a user of a certain disc. Many DVD identifiers 2402 can be stored in the database 2412, and a specific identifier 2402 selected at random. A user associated with the selected DVD identifier 2412 (e.g. renter or retail purchaser) is then awarded with a prize such as, for example, money or discounts on merchandise.

[0248] While various embodiments have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of a preferred embodiment should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents.

What is claimed is:

1. A method for tracking usage of a recording medium based on an identifier stored on the recording medium, the method comprising the steps of:
  - (a) receiving from a client device an indicia corresponding to the identifier of the recording medium upon the recording medium being input into the client device by a user;
  - (b) receiving from the client device an indicia identifying the client device;
  - (c) determining a characteristic of the storage medium based upon the received indicia corresponding to the identifier;
  - (d) identifying the client device based upon the received indicia identifying the client device; and
  - (e) storing the characteristic of the recording medium and the identity of the client device in a database.
2. A method for tracking a recording medium as recited in claim 1 wherein the characteristic of the recording medium includes an intended usage.
3. A method for tracking a recording medium as recited in claim 1 wherein the characteristic of the recording medium includes whether the recording medium was intended to for rental or retail sale.
4. A method for tracking a recording medium as recited in claim 1 further comprising the steps of:

- (a) utilizing the client device to read the identifier; and
- (b) transmitting the indicia corresponding to the identifier from the client device to a server via the internet utilizing a browser embodied on the client device.

5. A method for tracking data as recited in claim 1 further including the step of determining a manner in which the recording medium is being used by the client device based upon the determined client identity and recording medium characteristic.

6. A method for tracking data as recited in claim 1 wherein the characteristic of the recording medium includes the characteristic that the recording medium is a retail-sale video, the method further including the step of monitoring the database to determine whether the retail-sale recording medium is being operated on multiple client devices.

7. A method for tracking data as recited in claim 1 further including the step of determining, based upon the identifier, a merchant from whom the user obtained the recording medium.

8. A method for tracking data as recited in claim 1 further including the steps of:

- (a) determining, based upon the identifier, a merchant from whom the user obtained the recording medium; and
- (b) transmitting a marketing message to the client device incenting the user to further patronize the merchant.

9. A method for tracking data as recited in claim 1 further including the steps of:

- (a) determining, based upon the recording medium identifier, a merchant from which the recording medium was obtained;
- (b) selecting from a database of preferred merchants a merchant most suited to the user based upon the merchant identification; and
- (c) directing the user to the selected merchant.

10. A method for tracking data as recited in claim 1 further including the steps of:

- (a) storing the identifier in a database of other identifiers;
- (b) selecting an identifier at random from the directory of identifiers; and

- (c) issuing a prize to a person associated with the randomly selected identifier.

11. A method for tracing data as recited in claim 1 further including the steps of:

- (a) generating a coupon associated with the identifier of the recording medium;
- (b) determining that the coupon has been redeemed;
- (c) disabling the coupon based upon the determination that the coupon has been redeemed.

12. A method for tracing data as recited in claim 1 wherein the determined characteristic of the recording medium is that the recording medium has been rented to a rental client, and further including the step of after identifying the client device, allowing play only on the identified client device.

13. A method for tracing data as recited in claim 1 wherein the determined characteristic of the recording medium is that the recording medium has been rented to a client for a predetermined number of plays, the method further comprising the steps of:

- (a) monitoring the number of times the video has played; and
- (b) disallowing play of the video after the recording medium has been played the predetermined number of times.

14. A method for tracing data as recited in claim 1 wherein the determined characteristic of the recording medium is that the recording medium has been stolen, the method further comprising the step of disallowing play of the video based upon the determination that the video has been stolen.

\* \* \* \* \*



(19) **United States**  
 (12) **Patent Application Publication** (10) **Pub. No.: US 2001/0049627 A1**  
**Simpson** (43) **Pub. Date: Dec. 6, 2001**

(54) **METHOD AND SYSTEM FOR DISTRIBUTION OF ELECTRONIC COUPONS**

**Related U.S. Application Data**

(63) Non-provisional of provisional application No. 60/185,686, filed on Feb. 29, 2000. Non-provisional of provisional application No. 60/244,373, filed on Oct. 30, 2000.

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**Publication Classification**

(51) Int. Cl.<sup>7</sup> ..... **G06F 17/60**  
 (52) U.S. Cl. .... **705/14**

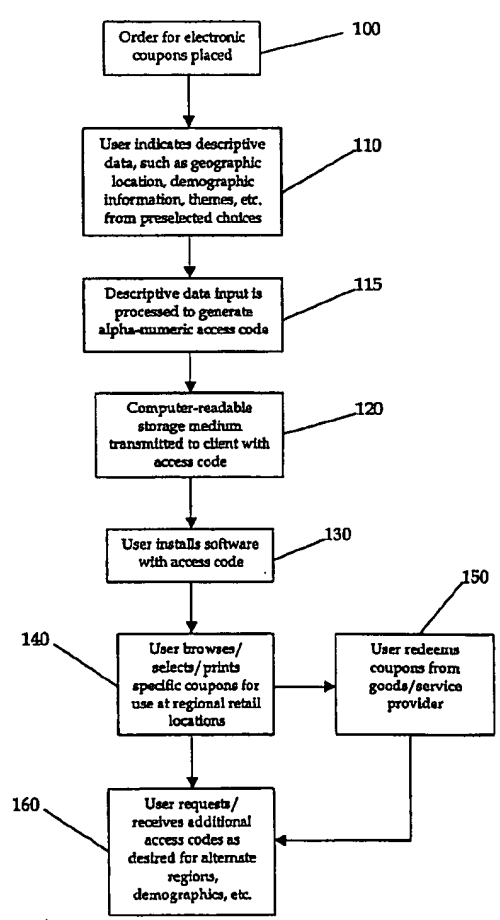
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(57) **ABSTRACT**

Disclosed is a method and system enabling the electronic dissemination of electronic coupons combined with both coupon-related and coupon-unrelated information stored on a computer readable storage medium, and a control program limiting a user's access to only such coupons as have been authorized through user input of an access code.

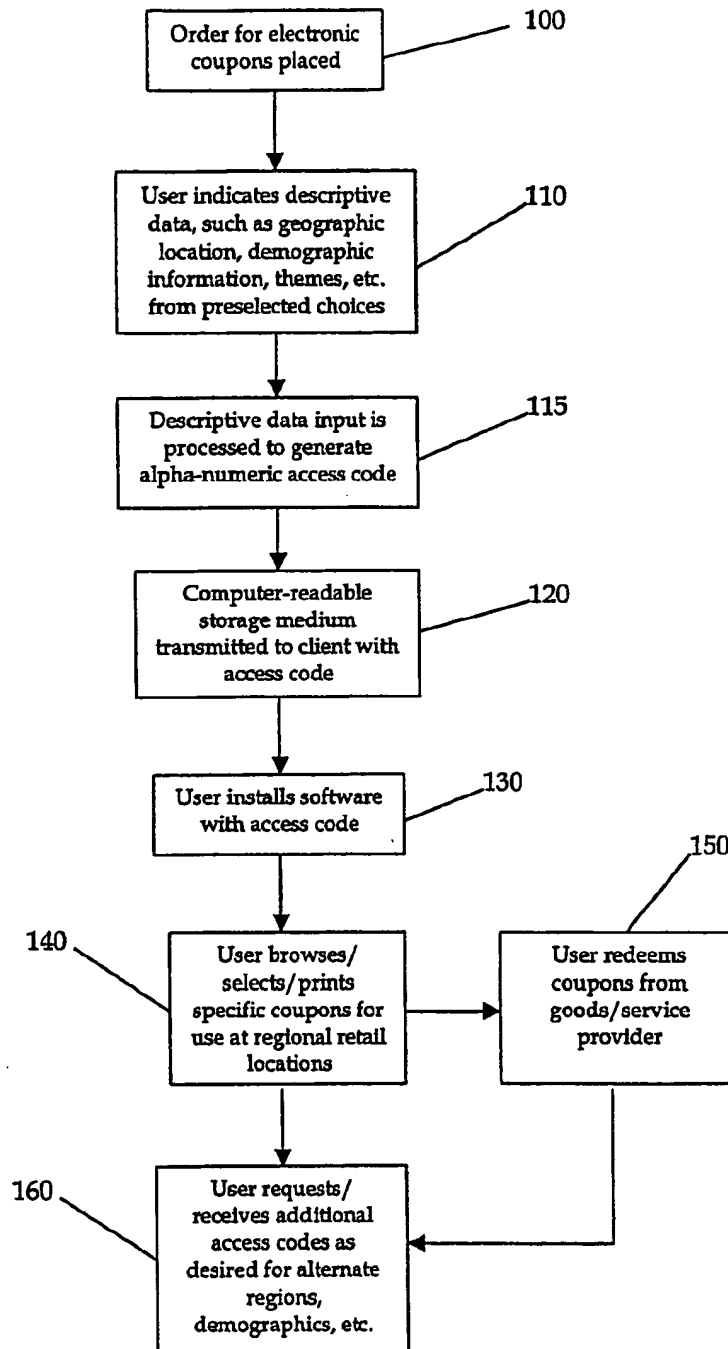
(21) Appl. No.: **09/795,218**

(22) Filed: **Feb. 28, 2001**





# FIGURE 1



# FIGURE 2

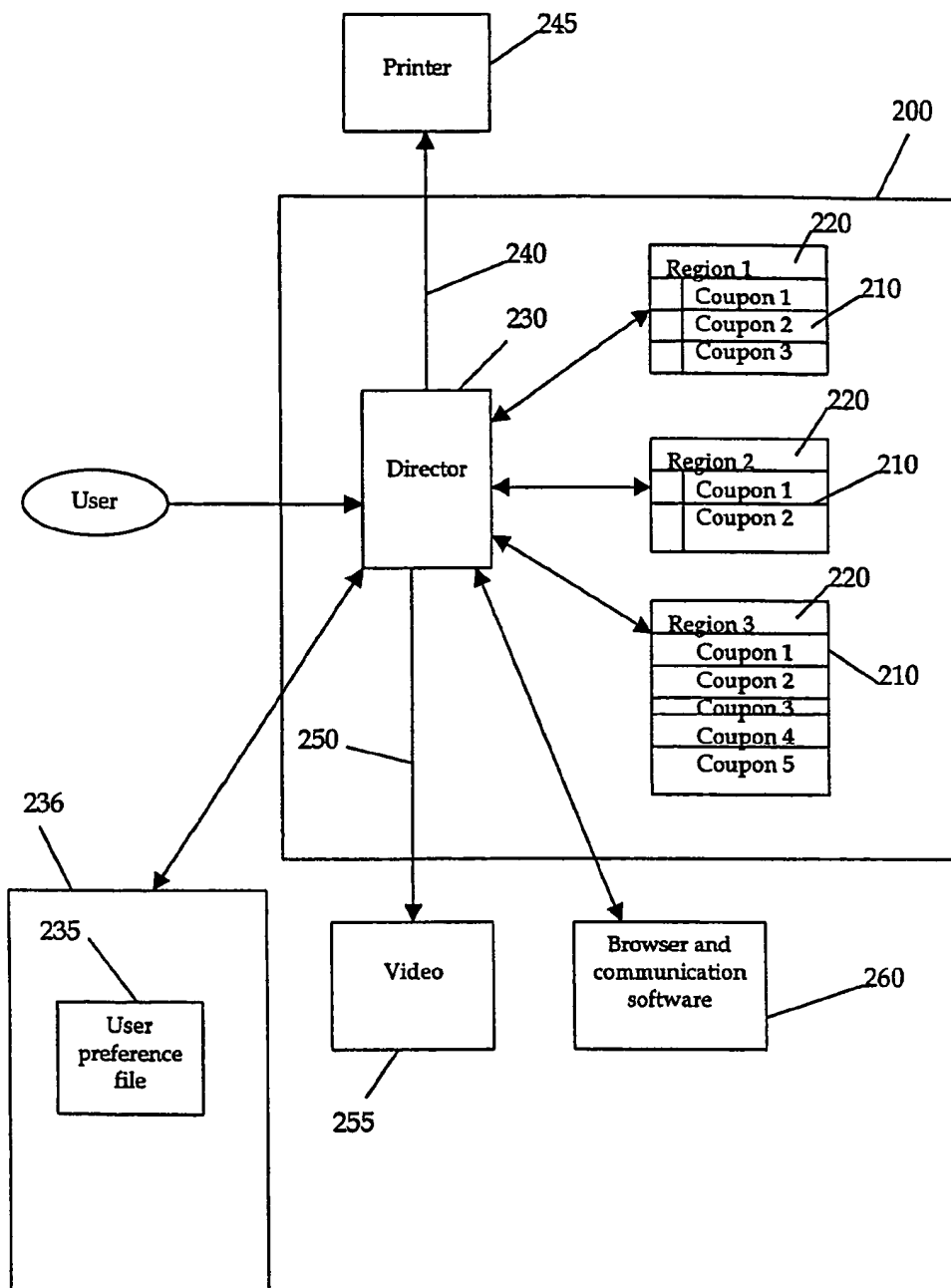


FIGURE 3

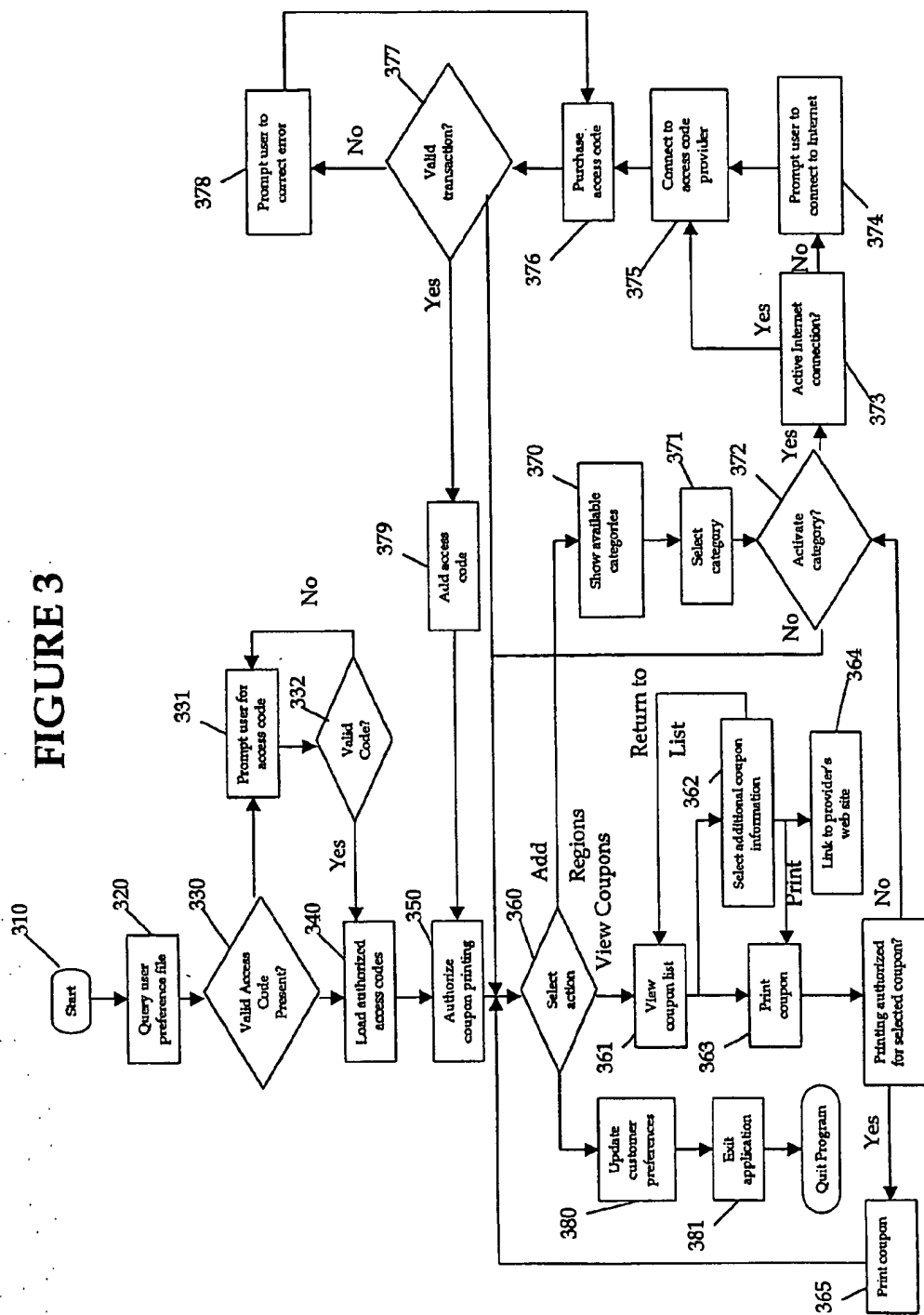


FIGURE 4

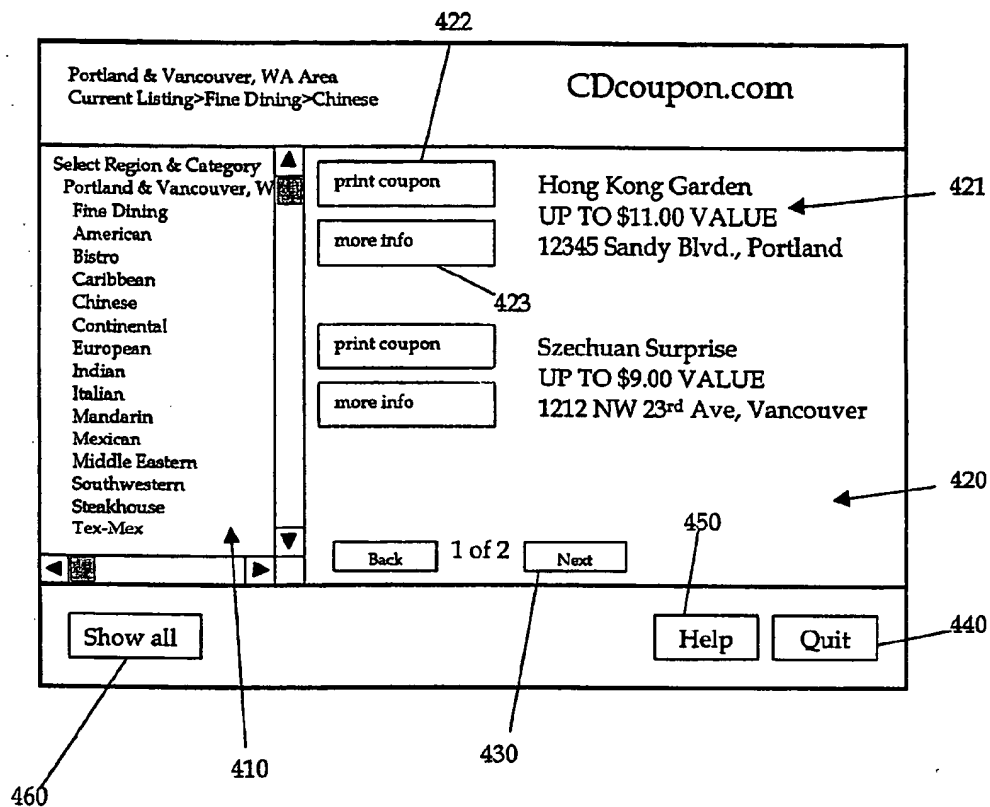
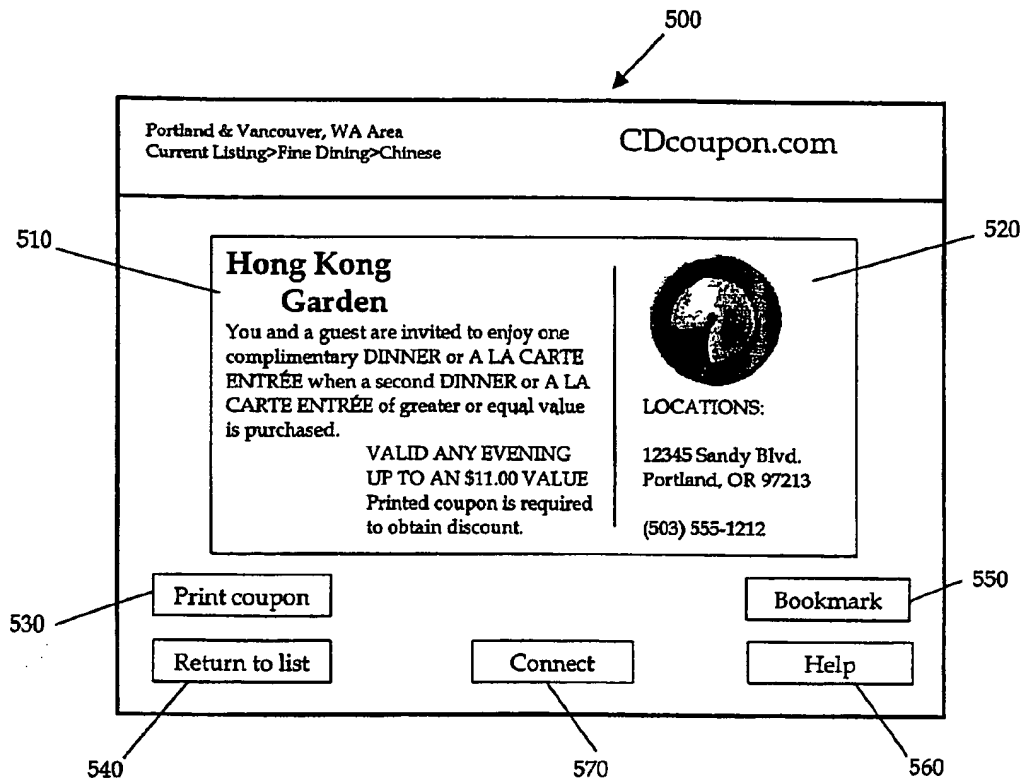


FIGURE 5



## METHOD AND SYSTEM FOR DISTRIBUTION OF ELECTRONIC COUPONS

### CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is based upon and gains priority from U.S. Provisional Patent Application Ser. No. 60/185,686, filed Feb. 29, 2000, by the inventor herein and entitled "CouponCD/CDCoupon," and U.S. Provisional Patent Application Ser. No. 60/244,373, filed Oct. 30, 2000, by the inventor herein and entitled "Method and System for Distribution of Electronic Coupons."

### BACKGROUND OF THE INVENTION

#### [0002] 1. Field of the Invention

[0003] The present invention relates to the electronic dissemination of consumer coupons, and more particularly to a method and system enabling the electronic dissemination of electronic coupons combined with both coupon-related and coupon-unrelated information stored on a computer readable storage medium, and a control program limiting a user's access to only such coupons as have been authorized through user input of an access code.

#### [0004] 2. Description of the Background

[0005] Consumers are often induced to make purchases as a result of varied forms of advertising. One often utilized advertising method is providing promotional discounts on particular goods or services in the form of printed coupons. Such printed coupons are often printed in full color and in massive quantities for distribution through such mediums as newspapers, advertising brochures, magazines, and the like, at significant expense. Seeing such a coupon, a purchaser will at times elect to purchase the coupon provider's goods or services solely because they feel they are getting a "bargain" in obtaining such a discount, often times in spite of the fact that the purchaser would not have considered purchasing such product or service without having been faced with a coupon in the first place.

[0006] Unfortunately, however, the vast numbers of coupons available in such print media often times results in consumers refusing to search through large collections in order to obtain what many consider may be a minute discount. Often times, only consumers on a very tight budget or those with a plethora of free time will exert the necessary effort of searching through collections of coupons normally distributed through mass media.

[0007] An alternative to this mass-produced printed coupon distribution medium has been the distribution of printed coupon books containing collections of consumer-orientated discounts in a single bound volume. While such a collection provides a single, centralized repository for coupons, such coupon books are often large, heavy bound volumes, and often cost from \$25.00 to \$50.00, and many consumers are unwilling to make such an investment for fear of no return of that investment through the coupons in the bound volume.

[0008] Likewise, the traditional coupon distribution medium provides significant disadvantages to the coupon advertisers and sponsors. Publication and advertising placement costs may be quite significant. For larger coupon books, manufacturing costs may reach \$7.00 per book,

leaving little profit margin, and often carry significant distribution costs. Coupon placement for each advertiser is also an issue, and once a coupon is cut from the book, the advertiser is no longer positioned to receive any additional ad impressions or sales opportunities. Additionally, all ad and coupon copy is fixed once the publication goes to press, such that there is no possibility for any real-time updates, offers, or changes in the offers by advertisers.

[0009] Further, due to the difficulty in managing the aggregate number of potential coupons and advertisers in each coupon book, coupons that are to be distributed in coupon books are often broken down and sold by geographic region. Thus, an end user of the coupon book will traditionally purchase a coupon book for the geographic region in which such user resides, for example the individual state of residence of the end user, and distributors will sell the coupon books at retail prices ranging from \$10.00 to \$40.00 per state. Thus, if the user finds himself travelling outside of his or her own state and requires coupons for car rentals or hotels, the user would need to have already purchased additional coupon books for those states in which he or she is now travelling.

[0010] Still further, consumers of such coupon books may find only a limited number of discount offers particularly suited for their needs. Because the coupons provided in such a coupon book must be forever removed and surrendered to a product or service provider, the fact that the coupon book provides the consumer with only a single opportunity to use the coupon limits its usefulness and desirability to such a consumer.

[0011] Attempts have been made in the past to provide alternate means of distributing consumer rebates, coupons, or other offers, such as through the Internet, diskettes, email, etc. For example, there are currently a number of web sites accessible via the Internet that provide various means by which users may select coupons to print on their own computer. In order to use such a service, a consumer is ordinarily required to "register" themselves as a user of such a service by providing personal information, such as their name, address, telephone number, and often times personal consumer characteristics and preferences that the service provider may later use themselves for more directed marketing efforts, or sell to others for their marketing use. Likewise, coupon providers may incur substantial expense in seeking to provide their discount offers through such a service, as the only way in which such a service provider may derive a profit is to charge advertisers for coupon placement, and possibly charge per each coupon downloaded. Further, such an online method for distributing coupons necessarily requires that a user have access to an Internet connection in order to obtain and use the coupons. Such a mandatory Internet connection reduces the potential number of consumers who are able to benefit from the use of such a coupon distribution system, and likewise increases a user's exposure to computer viruses which may inadvertently be obtained through Internet downloads. Even further, such an online method for distributing electronic coupons causes the user to experience significant wait times when downloading individual coupons. Bandwidth limitations limit the amount of data that may be included in any single coupon record, and users seeking to obtain a large number of coupons may find themselves waiting for excessively long periods of time.

[0012] Another example of previous methods and apparatus for distributing electronic coupons is shown in U.S. Pat. Nos. 5,710,886 and 6,035,280 to Christensen et al. in which a list of consumer's names and addresses is generated as a "target list" to receive mass mailings of a diskette bearing electronic coupons. Upon receipt of the diskette, a user is required to phone a toll free number or access a remote server in order to provide identification and demographic information, such as the user's name, address, income level, marital status, number of children, etc. After the toll free operator or remote server confirms that the user is in fact the particular targeted consumer, the user is provided an authorization number to unlock the software on the diskette, in turn enabling the user to then view and print a limited, pre-designated number of each coupon stored on the diskette.

[0013] While Christensen does seek to provide a means of distributing consumer coupons that improves upon the traditional distribution scheme for paper coupons, it does carry significant disadvantages. More particularly, while a single diskette may be produced and distributed to a select demographic or geographic population, customization for varying demographic populations or geographic regions requires the creation of separate diskettes for each such population or region. Production of such customized diskettes increases manufacturing costs such that wide scale distribution may be prohibitively expensive. Further, Christensen particularly requires that coupons provided through the apparatus be limited to a particular number of uses, such that even a diverse collection of coupons may have little functionality for consumers who are particularly suited to benefit from only a small portion of that collection. Likewise, having content limited to coupon offers and advertising information, consumers are provided little additional incentive to engage in the task of sifting through a large collection of coupons in order to identify a possibly relevant or desirable discount offer, and thus are no more likely to review an electronic collection of coupons than they are to review a collection of print coupons. Even further, Christensen particularly requires that a user contact a remote location via Internet connection or telephone as an absolute prerequisite to accessing and using any of the coupons, and during such contact solicits personal information from the user which may result in the user being later bombarded with "junk mail."

[0014] Thus, a need exists for a more compact, easily manufacturable, transportable and distributable coupon collection which enhances the functionality of previously known coupon distribution systems to ensure continued user interest and more wide-spread usability, and which allows for distribution of a single collection of coupons, rebates, discounts, or other offers to geographically, demographically, or otherwise identifiably segmented populations with means to customize the select offers made available to each population.

#### SUMMARY OF THE INVENTION

[0015] It is therefore an object of the instant invention to provide a method and system for distributing coupons that avoids the disadvantages of the prior art.

[0016] It is another object of the instant invention to provide a method and system for distributing electronic coupons that combines a collection of coupons with coupon-unrelated information and utilities provided to entertain a user and to encourage review of all of the coupon records in the collection.

[0017] It is still another object of the instant invention to provide a method and system for distributing electronic coupons that includes the presentation of multimedia information.

[0018] It is still even yet another object of the instant invention to provide a method and system for distributing electronic coupons that enables the collection of consumer-related information.

[0019] It is even yet another object of the instant invention to provide a method and system for distributing electronic coupons that allows the sharing of information between coupon users and a coupon provider.

[0020] It is even yet another object of the instant invention to provide a method and system for distributing electronic coupons that allows the distribution of a single collection of coupons, rebates, discounts, or other offers to geographically, demographically, or otherwise identifiably segmented populations with means to customize the select offers made available to each such population.

[0021] It is still even yet another object of the instant invention to provide a profitable method and system for distributing electronic coupons that does not require charging a coupon provider a coupon placement fee or coupon download fee.

[0022] It is even yet another object of the instant invention to provide a method and system for distributing electronic coupons which does not require a remote communication in order to print and use the coupons.

[0023] These and other objects and advantages are achieved by the present invention which provides a method and apparatus for the distribution of electronic coupons, rebates, discounts, or other offers. A consumer purchases a package comprising a computer readable storage medium, such as a CD-ROM, DVD, diskette, or the like, bearing electronic coupons, coupon-related information (such as textual information and multimedia displays relating to the particular coupon, rebate, or discount offers provided on the CD-ROM), coupon-unrelated information (such as games, trivia, and textual and multimedia presentations not relating to the particular coupon, rebate, or discount offers provided on the CD-ROM), and a control program which limits a user's access to a distinct selection of coupons. The CD-ROM is provided to a user in combination with a booklet, card, or label indicating an access code configured as input for the control program to direct the control program to enable a user to access only a select group of coupons from the entire collection of coupons stored on the CD-ROM. In a preferred embodiment, the control program will enable a user to view all coupon records stored on the CD-ROM, while limiting a user's access to a print function enabling the printing of coupons, such that only those coupons for which a valid access code has been input by the user may be printed. After inputting a valid access code, users may then print as many copies as the users desire of each coupon for which the print function has been enabled. Imprinting certain items of a user's personal information on each printed coupon enables an employee of a retail establishment to confirm that the user who actually purchased the CD-ROM is in fact the person redeeming the coupon or other discount offer, thus deterring the use of coupons by unauthorized persons.

\* commercial

[0024] The coupon records stored on the CD-ROM preferably provide the user with a link to the coupon provider's Internet web site. Upon connecting to the provider's web site, certain demographic information relating to the user may be automatically transferred to the coupon provider for purposes of tracking statistical demographic information relating to users of each coupon provider's goods and services. Likewise, in the event a coupon provider wishes to update coupon offers previously provided on the CD-ROM, they may make the users aware of the availability of such additional or modified offers upon their visit to the web site.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0025] Other features, objects and advantages of the subject invention will become apparent from a study of the following specification when viewed in light of the accompanying drawings, in which:

[0026] FIG. 1 is a flowchart graphically depicting the method of the instant invention.

[0027] FIG. 2 is a schematic diagram of the software of the instant invention.

[0028] FIG. 3 is a flowchart graphically depicting the software method of the instant invention.

[0029] FIG. 4 is a graphical representation of a user interface of the instant invention.

[0030] FIG. 5 is a graphical representation of a single coupon record.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0031] The method and system of the instant invention provide a means by which a single collection of coupons, rebates, discount offers, or other consumer incentives may be provided in a common distribution medium with means for limiting the redemption of such consumer incentives to limited, identifiably segmented populations, such as to consumers within a particular geographic area, consumers having a common demographic trait, or consumers of particular classes or groups of goods or services, such as travel service consumers, sporting event consumers, sporting goods consumers, restaurant service consumers, etc. The apparatus comprises a computer readable storage medium, such as a CD-ROM, DVD, diskette, or the like, containing a number of "electronic coupons," which comprise computer-readable files having textual and optionally graphical or multimedia information relating to a particular discount offer, which information may be displayed to a user through use of a standard personal computer equipped with a drive capable of receiving and accessing information stored on the computer readable storage medium. A control program is also provided for controlling a user's access to such electronic coupons, and more particularly in a preferred embodiment of the instant invention, limiting a user's access to a print function enabling the selective printing of such electronic coupons. Also provided on the CD-ROM is textual, graphical, multimedia, and/or interactive programs which are unrelated to the coupon offers stored on the CD-ROM, such as games, stories, movies, or other entertainment items, but which may optionally include links to such electronic coupon offers upon the happening of certain events. For example, a game may be provided on the CD-ROM unre-

lated to the specific discount offers provided on the CD-ROM which, upon the user achieving a predetermined score in the game, rewards the user with access to a particular coupon, gift certificate, or other discount offer stored on the CD-ROM. Alternately, a multimedia presentation may be provided on the CD-ROM discussing a particular professional sports team or player which, at the end of such presentation, displays to the user a particular collection of coupons or other discount offers relating to sporting goods or discounts off of sporting events.

[0032] The method of the instant invention is shown in the summary flowchart of FIG. 1. At step 100, a consumer, wishing to obtain discounts on future purchases of a variety of goods and services, places an order for a CD-ROM, DVD, high density floppy disk drive, or similarly configured computer readable storage medium containing a variety of electronic coupons and software for controlling a user's access to those coupons. As will be described in greater detail below, such a CD-ROM is preferably provided with a number of coupons relating to product and service providers that may be arranged into separately distinguishable groups, based upon demographic traits of consumers to whom the coupon offers are directed, geographic regions in which the coupon offers may be redeemed, or particular classes of goods or services to which the coupon offers relate. Each such distinguishable group is in turn assigned an access code comprising a unique, random alpha-numeric code configured as input to the control program on the CD-ROM.

[0033] In a first embodiment of the instant invention, when an order is placed for a CD-ROM having such electronic coupons, at step 110 the user indicates descriptive data, such as the particular geographic area of the user, and at step 115, such data is analyzed and assigned a regional access code corresponding to that specific geographic area. For example, the regional access codes stored on the CD-ROM may comprise groupings of postal zip codes, and the order-originating consumer's zip code may be cross-referenced against the groupings of zip codes stored on the CD-ROM, such that the appropriate regional access code may in turn be associated with that consumer's particular order. Alternately, the regional access codes stored on the CD-ROM may comprise groupings of particular states and cities, and the order-originating consumer's state may be cross-referenced against the states listed on the CD-ROM, such that the appropriate regional access code designating the consumer's state may in turn be associated with that consumer's order. As mentioned above, the use of such regional access codes to limit a consumer's access to particular coupons stored on the CD-ROM enables the software of the instant invention to be mass produced in a single version, as opposed to having separate versions for each distinct geographic area, in turn reducing manufacturing costs and inventory requirements for individual order fulfillment facilities.

[0034] In an alternate embodiment of the instant invention, a user may be presented with a listing of various distinct regions from which the user may select a particular collection of coupons. Upon selecting a particular region, such as by pull-down menu or by "clicking" on a graphical image of a map using a computer mouse or similarly configured pointing device, a regional access code identifying the indicated region is associated with that particular consumer's order.



[0035] In yet another alternate embodiment of the instant invention, a user may be presented with pull down menus or other similarly configured selection tools from which a user may indicate, by way of example only, gender, age, hobbies and interests, occupation, or any other information which may be useful in customizing the coupons or discount offers that will be made available to such user. Thus, for example, a user who indicates that they are a female, age 25-30, with interests in outdoor activities and cooking, and an annual income of over \$50,000.00 may result in the generation of an access code which provides that user access to all coupons relating to sporting goods, sporting events, jewelry, flowers, dining, cooking, and banking and investment services.

[0036] In even yet another alternate embodiment of the instant invention, a user may select a particular "theme" or a specific class of goods and services from a predesignated listing of such themes or classes, such as, by way of example only, sports, fashion, entertainment, etc. Thus, should a user select a sports theme, an access code may be generated which provides that user access to all coupons relating to sporting goods, sporting events, and the like.

[0037] Thus, while a noncustomized CD-ROM, DVD, or the like having a standard collection of coupons and a control program may be manufactured and provided to such user, the access code enables the control program to customize the collection of coupons made available to such a user to account for varying geographic areas, demographics, or interests of the users.

[0038] A consumer may place an order for a CD-ROM (step 100) by contacting an electronic coupon distribution center by telephone, facsimile, mail, or email, in which case such an order request will be processed and fulfilled by an individual at the distribution center, or may alternately access a remote server across a wide area network such as the Internet. Such a remote server preferably houses computer software which enables a user to remotely perform a commercial transaction to purchase a CD-ROM bearing such electronic coupons. When placing such an order through a remote server, and as explained more fully above, the consumer preferably selects particular coupon customization criteria, such as a specific geographic region in which the consumer intends to use the coupons from a list or available geographic regions, or particular demographic characteristics of themselves such as gender, age, hobbies, occupation, etc., and an alpha-numeric access code configured as input to the control program pertaining to the consumer's designated geographical region, demographic characteristics, or other coupon customization criteria is associated with that consumer's order.

[0039] After the appropriate access code has been associated with a particular consumer's order, an instruction booklet, card, or label is placed with the CD-ROM in a single package, the instruction booklet, card, or label bearing the access code that has been assigned to that consumer's order, and at step 120 the combined CD-ROM and instruction booklet, card, or label are shipped to the consumer.

[0040] After the consumer receives the CD-ROM, he may access the software and the coupons stored on the CD-ROM at step 130 by placing the CD-ROM in a compatible disc drive on a standard personal computer. As is described in greater detail below, when the software is first initiated on a

consumer's local computer, the software prompts the user to enter the access code displayed on the instruction booklet, card, or label that was packaged with the CD-ROM.

[0041] Optionally, in addition to being prompted for an access code upon initiation of the software, the software may prompt a user to input certain demographic and biographic information, including by way of example only, the user's name, address, telephone number, email address, age, gender, and any other information that might be of marketing value to a coupon provider. As described in greater detail below, such information may be stored on the user's local computer in an associated user preference file and transmitted to a coupon provider upon the user's establishing contact with a remote server administered by such coupon provider. The coupon provider may then use such demographic information to determine usage of its products and services, and to thereby tailor future coupon offerings and other marketing promotions to maximize the effectiveness of such marketing efforts, and provide the user with any instant, real-time offers.

[0042] After the consumer has input a valid access code, the control program provides the consumer access to all coupons stored on the CD-ROM which are associated with such access code. Optionally, upon input of a valid access code, the control program may allow the consumer to view the entire collection of all coupons stored on the CD-ROM, while providing print capability only for such coupons for which a valid access code has been entered. At this point, a user may browse through the various coupons stored on the CD-ROM, including viewing multimedia presentations associated with any coupons, bookmark particular coupons for later quick retrieval, and print those coupons which are associated with the access code input by the consumer during the initiation process.

[0043] Once printed, the consumer may at step 150 then take the coupon to a retail establishment and redeem the coupon for a discount off of the cost of a product or service the coupon describes.

[0044] Optionally, in addition to being prompted for an access code upon initiation of the software, the software may also prompt a user to input certain demographic and biographic information, including by way of example only the user's name, address, telephone number, email address, age, gender, and any other information that might be of marketing value to a coupon provider. As described in greater detail below, such information may be stored on the user's local computer and transmitted to a coupon provider upon the user's establishing contact with a remote server administered by such coupon provider. The coupon provider may then use such demographic information to determine usage of its products and services, and to thereby tailor future coupon offerings and other marketing promotions to maximize the effectiveness of such marketing efforts.

[0045] As with traditional paper coupons, the coupons stored on the CD-ROM may have a designated expiration date. Should the consumer wish to purchase additional coupons after such expiration date, or likewise purchase coupons in alternate geographic locations or relating to alternate demographic populations or themes generally, the consumer may at step 160 cause the software to initiate remote communication with a remote server across a wide area network such as the Internet, as discussed in greater

detail below. Such remote server preferably stores software for allowing a consumer to remotely purchase additional access codes which, after a purchase transaction is completed, automatically updates the software on the consumer's local computer to enable the consumer to print coupons associated with the newly purchased access code. Such remote server also preferably stores data files relating to all coupons stored on the CD-ROM, such that modifications, updates, or cancellations of particular coupons may be automatically transferred from the remote server to the consumer's local computer during each remote connection.

[0046] It should be noted that while the above description outlines the distribution of a physical CD-ROM bearing the software applications and information described herein, such software applications and information may alternately be distributed from a remote server to a user's local computer across a wide area network such as the Internet, without departing from the spirit and scope of the instant invention.

[0047] As shown in the schematic view of FIG. 2, the software of the instant invention comprises computer executable code 200 for enabling a user to access and print information from files relating to a variety of coupons, each such coupon being associated with one or more categories, such as distinct geographic regions, distinct demographic characteristics, or distinct themes, such as sports, fashion, entertainment, etc.

[0048] In a preferred embodiment of the instant invention, a number of coupon files 210 are provided on the CD-ROM referring to a wide variety of coupons from sources that are widely geographically dispersed. Each coupon file includes textual information relating to the specific discount offer, and may also include textual and/or graphical information relating to the terms and conditions associated with the offer, visual images relating to the coupon provider's goods or services, textual information, visual images, and/or multimedia files describing the coupon provider's goods or services or instructions for their use, and any other information that a coupon provider may wish to relay to a consumer, as will be discussed in greater detail below.

[0049] In the preferred embodiment depicted in FIG. 2, each such coupon file is in turn associated with a particular regional access code 220. It is important to note, however, as discussed above, that the electronic coupons stored on the CD-ROM may alternately be categorized based upon particular demographic characteristics of persons who may be inclined to use the products or services the coupon describes, or based upon a particular theme relating to the goods or services offered in a certain collection of coupons (e.g., sports, fashion, etc.), with a unique access code being associated with each such categorization. A regional access code preferably comprises a random, 16 digit, alpha-numeric access code (which provides approximately 10 trillion different combinations) that must be received by the software as a user input in order to enable a print function for a particular group of coupons associated with such regional access code. In the embodiment depicted in FIG. 2, a separate regional access code, which is embodied in the 16 digit, alpha-numeric code, is provided for each distinct geographical region in which the coupons are to be distributed. For example, a distinct regional access code may be assigned to each state, such that all coupons relating to

goods or services provided within a single state will have a common regional access code. Alternately, a regional access code may be assigned to a particular numeric series of postal zip codes, such that all coupons relating to goods or services provided in any one of a particular range of zip codes will likewise have a common regional access code.

[0050] The software is also provided a director function 230 which communicates with a user preference file 235 stored on a memory storage device 236 on the user's local computer, receives user inputs and information relating to previously identified region codes from the local computer's memory storage device 236, selectively enables a print function 240 to print coupons corresponding to a user-inputted access code to a local printer 245, enables a display function 250 to display to a local video terminal 255 user-selected coupon related information, and, in response to particular user selections and/or instructions, initiates an external browser software and communications software 260 to cause the consumer's local computer to access and communicate with a remote server. The director function, as well as the process of associating particular coupons with particular access codes, is accomplished through a readily commercially available computer software package for assisting in the creation and modification of computer interface screens, which software packages typically enable a programmer to design the layout of a display screen such as the size, character, and placement of buttons and windows on the screen and combine text, graphics, audio and video into a user-friendly application screen interface. In general, such authoring tools comprise prewritten computer code having a functionality for reading a data structure that defines a task to be taken and performs the task based on the data. High-end authoring systems have the capability to integrate different media and they include full application-building programmability similar to that found in database packages. Most authoring tools define a screen and the specific attributes of the screen such as the definition of a video window that will play a specified video clip or show a text file or graphic image. The use of such tools will be apparent to those of ordinary skill in the art when combined with the foregoing description and additional content which follows. For example, various methods and techniques for defining and displaying windows with associated task bars and buttons are well known in the art, as are methods and techniques for displaying bitmaps and multimedia files in such windows. As such, the present invention can be implemented with success with any of various off-the-shelf multimedia or other design tools. Specific examples of such computer application software authoring tools include Macromedia Director available from Macromedia, Inc., Asymetrix Multimedia ToolBook, and Oracle's Media Objects. However, one skilled in the art will recognize that other commercially available programs could also be used to author such interfaces and to define and translate the commands implemented by the instant invention.

[0051] As shown in the schematic flowchart of FIG. 3, the software is initiated when the consumer places the CD-ROM in a compatible disc drive located on the consumer's local computer, either through an auto-run function enabled by the operating system on the local computer, or through the user's specific instruction to run the executable file on the CD-ROM, both of which techniques are well known in the art.

[0052] After the software has initiated at step 310, and as mentioned briefly above, at step 320 the software accesses a user preference file stored on a memory storage device on the consumer's local computer. Such preference files are often generated during the installation of new programs on a user computer to record computer-specific and user-specific information relating to software elements installed on that machine. Such preference files may be written to and continuously accessed through, for example, the MICROSOFT WINDOWS registry, or may alternately comprise a separate data file accessed by the software of the instant invention at the start of each execution of the program. The software accesses the local preference file in order to scan for any access codes that had previously been entered by the user. If the consumer is using the software for the first time, no access codes will be present in the preference file, and the software will prompt the user at step 331 to input an access code. At step 332, the software then compares the user-input access code through a check-sum program, which verifies the entered code as being valid, and then to all region codes 220 (FIG. 2) stored on the CD-ROM in order to determine whether the user-input code matches any of the stored access codes. If the user has entered an invalid access code, the software will respond with a message to the user indicating that the code the user entered is invalid, and will again prompt the user to enter a valid access code.

[0053] Once the user has entered a valid access code, or in the case where the user has previously used the software such that an access code has already been written to the user preference file on the local computer, at step 340 the software receives as input any access codes stored on the local computer's memory storage device or any access code input by the user at step 331, and in turn authorizes a print function at step 350 for all coupons associated with the access codes input to the software at step 340. Step 350 may comprise, for example, the creation of a temporary file which maintains a list of all access codes for which such print function has been authorized.

[0054] Optionally, after the software has authorized a print function at step 350, the software may prompt the user to input certain biographic and demographic information, including by way of example only the user's name, address, telephone number, email address, age, gender, etc. As the user inputs such biographic and demographic information, the information is likewise written to the user preference file stored on the user's local computer. Such information is thus held in memory on the user's local computer, and can be copied and forwarded to a remote server administered by a coupon provider upon the user establishing remote communication with such a server, for purposes of collection marketing-related biographic and demographic data concerning the users of such coupon provider's goods and services. As explained in greater detail below, such information may also optionally be accessed when the software initiates a print function in order to print certain identifying information about the authorized coupon user (e.g., name, address, etc.) in order to allow an employee of the retail establishment to confirm (e.g., by examining both the coupon and a photo identification of the user) that the person attempting to redeem the coupon is in fact the same person that purchased the coupon.

[0055] After the print function has been authorized for the relevant coupons associated with the input access codes, the software presents a multi-window user interface at step 360 which enables a user to select from a variety of software functions (graphically depicted by buttons on the user interface), including viewing coupon records, adding additional access codes, or quitting the program.

[0056] When a user elects to view coupon records at step 361, a number of coupon records are displayed at one time. The user may select a first software function associated with each displayed coupon record which causes the software to initiate a software print function at step 363, or may select a second software function which causes the software to display more detailed information pertaining to a user-selected individual coupon record at step 362. If the user elects to display additional information at step 362, a single coupon record is presented which includes textual information relating to the precise discount offer made available through the coupon on the CD-ROM, and which optionally includes multimedia content which describes the coupon provider's goods or services relating to the coupon, other goods or services available, instructions on use of the coupon provider's goods and services, general advertising information of the coupon provider, or any other information that the coupon provider wishes to present to the user. When viewing such a single coupon record with or without multimedia content, a user may select a software function which causes a print function to be initiated for the coupon relating to the record being viewed at step 363, or a software function which causes the software to return to step 361 and display the full list of coupons available. Additionally, and as will be described in greater detail below, the single coupon record may present the user with a selective software function at step 364 which causes a browser software program stored on the user's local computer to be initiated which establishes communication with a remote terminal through a wide area network such as the Internet, such remote terminal interfacing with a computer server controlled by the coupon provider, in turn enabling the transfer of information between the user and the specific coupon provider's server.

[0057] When the software is caused to initiate a print function at step 363, the software first queries the temporary file created during step 350 to determine whether the coupon that was selected for printing is associated with an access code that was authorized during step 350. If the coupon is associated with an access code that was previously authorized, then at step 365 the software directs a print command to a local printer attached to the user's computer which in turn causes the coupon being viewed to be printed. After the print command is executed, the user is directed back to step 360 to select another action. Likewise, if the coupon is not associated with an access code that was previously authorized, then the software prompts the user at step 372 for input indicating whether the user wishes to purchase the access code for the user-selected coupon.

[0058] When so prompted, a user may elect not to purchase the access code associated with the coupon then being viewed, in which case the software terminates the display of the user-selected coupon and returns the user to the multi-window user interface at step 360. Likewise, a user may alternately elect to purchase the access code associated with the coupon being viewed, in which case the software initiates a remote communication function to purchase such

access code from a remote server across a wide area network such as the Internet, as will be described in greater detail below.

[0059] Optionally, in the event that the software previously prompted the user to input biographical and demographic information, which information was in turn written to the user preference file, upon the initiation of a print function at step 363, the software may likewise query the user preference file on the user's local computer to obtain certain biographic information relating to the user, including by way of example only the user's name and address. After obtaining such information from the user preference file, the software may automatically print such information on the print copy of the coupon. The automatic printing of such information directly on the printed coupon in turn enables an employee of the retail establishment at which the user is seeking to redeem the coupon to confirm that the coupon presenter is actually the authorized coupon user. Thus, in the event that someone other than the person who actually purchased the CD-ROM bearing the electronic coupons attempts to redeem the coupon, the employee of the retail establishment may reveal this fact through analysis of the information printed on the coupon, and thus thwart such attempted unauthorized coupon use. While providers of printed coupon collections have in the past provided a separate, specially manufactured physical piece of identification (e.g., a plastic identification card imprinted with the purchaser's name, which card would be compared against a coupon presenter's standard identification) along with the printed coupon collection in order to limit use of the coupons solely to the actual purchaser of the coupon collection, the method of the instant invention provides such protection without requiring an additional piece of identification beyond the user's own standard identification (e.g., a driver's license). By eliminating the need for a separate means of identification to be provided with the coupon collection, manufacturing costs may be significantly reduced.

[0060] Directing attention again to step 360, a user may opt to add access codes prior to viewing individual coupon records. When this function is initiated, the software first displays a list of all categorizations (whether geographic region, demographic characteristic, general theme, or the like) available on the CD-ROM at step 370, and next prompts the user for input at step 371 indicating the specific categorization desired by the user. Once such a desired categorization has been identified at step 371, the software next prompts the user at step 372 for input indicating whether the user wishes to purchase the access code for the user-selected coupon, as explained above.

[0061] When the user elects at step 372 to purchase a new access code, the software first queries the local operating system at step 373 to determine whether an active connection exists between the local computer and the Internet. If such a connection exists, then at step 375 the software directs a browser software program to access a specific URL which identifies a server housing application software that enables the remote purchase of additional access codes. If an Internet connection does not exist, the software at step 374 prompts the user to initiate the browser and communications software on the user's local computer in order to establish such a connection, and once such connection is established, proceeds as above at step 375 to connect the user's local computer to the access code purchasing server. Alternately,

the software may automatically initiate the browser and communications software programs stored on the local user's computer in order to establish the necessary remote connection. If for any reason it is not possible to establish a remote connection between the user's computer and the access code purchasing server, such as due to a lack of connectivity or Internet browser, the user is alternatively presented with a display including contact information, such as a toll free telephone number, fax number, mailing address, or the like which a user may access and/or contact in order to purchase the desired new access or update code. The code may then be provided to the user on a CD-ROM, diskette, or other computer readable storage medium, and will auto-install the new code to the user's preference file without displaying the code to the user, thus preventing the code from being repurposed in an unauthorized manner.

[0062] After the connection with the remote access code purchasing server has been established at step 375, the software automatically transmits to the remote server that portion of the user preference file stored on the user's local machine that indicates which access codes have previously been authorized. If no access codes have previously been authorized (as indicated by an absence of any access code entries in the user preference file), the software automatically terminates the connection between the user's local computer and the remote server. However, if at least one valid access code has previously been stored in the user's preference file stored on the local computer, the software running on the remote server may request input from the local user at step 376 relating to specific customer information, including the user's full name, address, phone number, type and model of computer, credit card information, and optionally additional demographic information (if said information is not already in the user's local computer and associated with the relevant preference file and access code), which information might later be used for marketing efforts. After the user has entered their customer information at step 376, the user's credit card or related financial information is validated at step 377. If the user's information cannot be validated, the user is prompted at step 378 to check the input data and to fix any errors that are evident, and is returned to step 376 to modify the data. Alternately should the user decide at this point to not purchase the new access code, the user may elect to quit the remote access code purchasing function and return to the multi-window user interface at step 360. However, if the user inputs valid financial information and such information is in fact validated at step 377, then the software running on the remote server transmits and writes to the local computer's user preference file the newly purchased access code at step 379, authorizes a print function for all coupons stored on the CD-ROM relating to the newly purchased access code at step 350, and again presents to the user the multi-window user interface described above at step 360. By using such an automatic transfer of the new access code to the user preference file stored on the local computer, the new access code is never viewable to the user, thus preventing the unauthorized use by others of such additional region codes.

[0063] In addition to automatically transmitting to the remote server that portion of the user preference file indicating which access codes have previously been authorized, in an alternate embodiment of the instant invention, the software may likewise transmit that portion of the user preference file which includes the user's biographic and

demographic information. Because the transfer of such information is automatic upon a user establishing communication with a coupon provider's remote server, the user need experience no obtrusive personal questioning each time he or she seeks to visit a coupon provider's web site or purchase additional access codes, but such coupon provider is still assured of collecting valuable marketing data relating to the demographic characteristics of users of its products and services.

[0064] Finally, a user may elect at step 360 to terminate the program. Selecting this software function causes the software to update the user preference file stored on the user's local computer at step 380, to ensure that the user preference file reflects all access codes that have been purchased by the user. After the local user preference file has been updated at step 380, the user may exit the application at step 381, and the program is terminated.

[0065] Optionally, a search function (not shown) is also provided which enables a user to search through the entire collection of coupons stored on the CD-ROM, preferably by keyword indexing, and optionally by zip code indexing to search specific geographic locations for discount offers.

[0066] As mentioned above, at step 360 the user is provided a multi-window user interface. A graphical representation of this user interface for a system of the instant invention categorizing the coupons stored thereon by geographic region is provided in FIG. 4. A first window 410 of the interface (shown generally at 400) provides a hierarchical configuration of records depicting at the highest level each distinct geographic region represented on the software, then individual categories of goods and services available in each region. A second window 420 provides a list of all coupons available in a specific category or region selected in the first window, including a brief textual description 421 of the details of the coupon or discount offer, and buttons 422 and 423 associated with each coupon record in the second window which initiate software functions to either print a selected coupon offer (button 422) or to display additional detail relating to any selected coupon offer (button 423). By selecting any category of goods and services in window 410, window 420 displays all coupons within such category for a given region. A user may scroll through the list of coupons in window 420, and for large numbers of coupons under a single category, may go from page to page using page navigation buttons 430. User interface 400 also provides a button 440 to initiate a software function to terminate the program, and a button 450 to initiate a software function that initiates a help screen. Finally, user interface 400 provides a button 460 to initiate a software function that displays a listing of all coupons stored on the CD-ROM.

[0067] As mentioned above, a user may elect in user interface 400 to display additional detail relating to any selected coupon offer using button 423. A graphical display of a detailed coupon record is shown in FIG. 5. The coupon record (shown generally at 500) comprises textual and optionally graphical information 510 describing the coupon provider's goods and/or services and the terms of the coupon discount offer. The coupon record also comprises a media window 520 which may display graphical images or multimedia content relating to the coupon provider, including information regarding the particular goods or services referenced in the coupon, advertisement for additional products

or services available from the coupon provider, instructions for using the provider's goods or services, technical information relating to the provider's goods or services, or any other information that the coupon provider might wish to present to the user.

[0068] A number of software functions are enabled through a series of buttons provided at the bottom of the coupon record 500, including a print function 530 which initiates the print function described above and shown in FIG. 3 at step 363, a return to list function 540 which returns the user to user interface 400, a bookmark function 550 which adds the displayed coupon to a list of coupons that may be accessed through a "favorites" category in window 410 of user interface 400, a help function 560 which initiates a help screen, and optionally a connect function 570 enabling the user to establish a remote connection with a coupon provider's Internet web site. In some instances, it may be desirable to coupon providers to have users go to the specific coupon provider's Internet web site, or alternately to a dedicated page at the specific coupon provider's web site, as the user is viewing the coupon provider's coupon. This may provide a valuable service to advertisers and consumers for various reasons, including real-time consumer updates, product information, rebates, sales, and to collect consumer information from those using the CD-ROM.

[0069] Connect function 570 directs a browser software program on the user's local computer to access a specific URL which identifies a server housing application software of the coupon provider. As explained above with respect to initiation of the remote region code purchase function in software step 373, if an Internet connection does not exist when the user attempts to connect to the coupon provider's site, the software may either prompt the user to initiate the browser and communications software on the user's local computer in order to establish such a connection, or alternately may automatically initiate the browser and communications software programs stored on the local user's computer in order to establish the necessary remote connection. After the connection with the remote coupon provider's server has been established, the software may again automatically transmit to the remote server that portion of the user preference file stored on the user's local machine that includes the user's biographic and demographic information, including by way of example only the user's name, address, and phone number, as well as the serial number for the software stored on the CD-ROM, in order to particularly identify an individual user of the CD-ROM. In this way, the web server at the specified URL would then recognize the CD-ROM over the Internet as being a CD-ROM distributed with a specific advertisement and printable coupon(s) as a part of a product/advertisement specific CD-ROM, or as one of many products/advertisements from a large selection of the same on the CD-ROM.

[0070] Additionally, the preference or registration file may also be continuously updated with information or "cookies" about how the user of the CD-ROM software navigates and uses the disc, as well as the types and numbers of coupons which the user of the CD software may be printing out on the computer's local printer, so that such information may likewise be automatically transmitted to a coupon provider's remote server upon a user initiating communication with such remote server.

[0071] Thus, when a user opts to connect to the Internet web site of the specific coupon provider, the software may automatically transmit to such remote server the preference file or registration file stored on the user's local memory storage device in a manner consistent with identifying the user as a registered user of the software, as well as gaining information about the manner in which the consumer has implemented and used the software and how many and which kind(s) of coupons may have been printed out for possible redemption. Knowing this information, the advertiser's web site could elect to automatically provide the user with selected product or coupon specific information and also to update the information files stored on the user's local computer.

[0072] In addition to the coupon features described above, the software of the instant invention also preferably comprises textual, graphical, multimedia, and/or interactive content and programs which are unrelated to the coupon offers stored on the CD-ROM, such as games, stories, movies, or other entertainment items. Providing such unrelated yet entertaining additions to the coupon collection stored on the CD-ROM enhances its appeals far beyond traditional coupon collections, providing additional incentives for a wider population of consumers to purchase and utilize such a collection.

[0073] In a first embodiment of the instant invention, games may be provided in addition to the electronic coupons and control program. While such games are preferably of a subject matter unrelated to coupon offers, such as arcade or trivia games, in order to even further increase a user's exposure to the coupons stored on the CD-ROM, users may be rewarded for reaching particular scores or levels of achievement in those games with particular coupons or other discount offers. For example, when playing a trivia game stored on the CD-ROM and achieving a record high score, the user may be presented with a coupon offering a discount off of a future book purchase at a book store. Such discount offer may remain unavailable until a particular score in the game has been reached.

[0074] Moreover, the particular coupons or offers presented to the user upon reaching such a predesignated "high score" may be established using the access code input by the user upon initiation of the software. Thus, just as the collection of coupons made available for printing may be customized through user input of an access code, the collection of coupons or offers presented to the user upon reaching a high score may likewise be customized. In order to provide such a customization, just as a user indicates a particular geographic region, demographic characteristic, or theme for coupons for which a print function shall be enabled, a user may likewise select a "prize category", i.e., a collection of coupons, discount offers, and the like relating to goods or services that share a common theme which may coincide with the theme for a game provided on the CD-ROM. Thus, by way of example only, a user may elect to play a sports-theme trivia game, and upon reaching a predesignated high score, may be presented with coupons or other offers for sporting goods and/or sporting events.

[0075] In addition to games, such coupon unrelated content may also include other types of entertaining multimedia content, such as interactive stories, movies, and any other

general entertainment content which draws a user to engage the CD-ROM, and thus obtain exposure to the collection of coupons stored thereon.

[0076] Moreover, in addition to providing customized coupons or other offers as rewards for achieving predesignated high scores in games stored on the CD-ROM, the system of the instant invention may likewise employ the access code and the user's own biographic and demographic information to customize the particular games or other multimedia entertainment items provided on the CD-ROM. For example, a user who selects a sports theme when first ordering a CD-ROM will generate an access code which will provide access to sports-related coupons, in addition to sports-related games and multimedia information. The customization of such coupon unrelated information can then in turn be even further customized, for example, by comparing the user's age (stored in the preference file with the user's biographic and demographic information) to age collections of sports-related content, such as modern sports content for persons aged 5-20, sports content from the 1970's and 1980's for persons ages 20-55, and sports content prior to 1970 for persons over age 55. A method and system for providing such a customization of coupon-unrelated content is particularly disclosed in the inventor's copending patent application ser. Nos. 09/377,108 and 09/773,726.

[0077] While the preferred forms and embodiments of the invention have been illustrated and described, it will be apparent to those of ordinary skill in the art that various changes and modifications may be made without deviating from the inventive concepts and spirit of the invention as set forth above, and it is intended by the appended claims to define all such concepts which come within the full scope and true spirit of the invention.

1. A method for distributing electronic coupons comprising the steps of:

- (a) providing a remote host electronic coupon ordering system;
- (b) causing said ordering system to prompt a user to select coupon customization criteria;
- (c) using said customization criteria to generate an alphanumeric access code; and
- (d) providing in combination said access code and a computer-readable storage medium containing a control program, a non-customized collection of electronic coupons, and coupon unrelated content to said user, said control program being operable in response to input of said access code to limit a user's access to said non-customized collection of electronic coupons to a discrete, customized collection of said non-customized electronic coupons.

2. The method of claim 1, said control program being further operable in response to a request from said user to obtain an additional access code to establish remote communication between a computer used by said user and said ordering system, said method further comprising the steps of:

- (e) establishing remote communication between said computer used by said user and said ordering system after said access code and said computer readable storage medium have been provided to said user;

- (f) causing said ordering system to prompt said user to select alternate coupon customization criteria;
- (g) using said alternate coupon customization criteria to generate an alternate alphanumeric access code; and
- (h) transmitting said alternate access code to said computer used by said user, said control program being operable in response to input of said alternate access code to modify said user's access to said non-customized electronic coupons to include an additional discrete, customized collection of said non-customized electronic coupons.

3. The method of claim 2, wherein step (h) of transmitting said alternate access code is conducted without displaying said alternate access code to said user.

4. The method of claim 2, said control program being further operable to prompt said user to input biographic and demographic data and to write said biographic and demographic data to a memory storage device on said computer, said method further comprising the step of receiving from said computer said biographic and demographic data after establishing remote communication between said computer used by said user and said ordering system.

5. The method of claim 1, wherein said step of causing said ordering system to prompt said user to select coupon customization criteria further comprises prompting said user to indicate a specific geographic region in which said customized collection of coupons may be redeemed, said control program being further operable in response to input of said access code to limit a user's access to said non-customized collection of electronic coupons to a discrete, customized collection of said non-customized electronic coupons which may be redeemed within said specific geographic region.

6. The method of claim 1, wherein said step of causing said ordering system to prompt said user to select coupon customization criteria further comprises prompting said user to indicate specific biographic and demographic data, said control program being further operable in response to input of said access code to limit a user's access to said non-customized collection of electronic coupons to a discrete, customized collection of said non-customized electronic coupons which are predestinated to correspond to said biographic and demographic data.

7. The method of claim 1, wherein said step of causing said ordering system to prompt said user to select coupon customization criteria further comprises prompting said user to indicate a specific theme of coupon offers, said control program being further operable in response to input of said access code to limit a user's access to said non-customized collection of electronic coupons to a discrete, customized collection of said non-customized electronic coupons which are predestinated to correspond to said theme.

8. The method of claim 1, further comprising the steps of:

- (e) causing said control program to request said access code from said user; and
- (f) using said access code to limit a user's access to said non-customized collection of electronic coupons to a discrete, customized collection of said non-customized electronic coupons.

9. The method of claim 8, further comprising the steps of:

- (g) displaying to said user a user interface comprising:

- (i) a listing of electronic coupons in said customized collection;
- (ii) means for initiating a display of a single one of said electronic coupons in said customized collection; and
- (iii) means for initiating a display of coupon unrelated information.

10. The method of claim 9, further comprising the steps of:

- (h) receiving as input a user selection of a single one of said electronic coupons in said customized collection;
- (i) displaying a single coupon record to said user, said single coupon record further comprising a description of a discount offer associated with said single one of said electronic coupons in said customized collection and means for initiating a print function for printing said single coupon record.

11. The method of claim 10, further comprising the steps of:

- (j) prior to displaying said user interface, prompting said user to input biographic and demographic data, and writing said biographic and demographic data to a memory storage device on a computer used by said user; and
- (k) after displaying a single coupon record, and in response to receiving a user instruction to initiate said print function, printing said coupon record with at least a portion of said biographic and demographic data being printed thereon.

12. The method of claim 10, said single coupon record further comprising means for establishing communication between a computer used by said user and a remote Internet web site associated with a provider of said single coupon record, said method further comprising the steps of:

- (j) prior to displaying said user interface, prompting said user to input biographic and demographic data, and writing said biographic and demographic data to a memory storage device on said computer; and
- (k) after displaying said single coupon record, and in response to receiving a user instruction to establish communication between said user computer and said remote Internet web site, establishing said communication and automatically transferring at least a portion of said biographic and demographic data to said remote Internet web site.

13. The method of claim 10, further comprising the steps of:

- (j) in response to receiving a user instruction to initiate said print function, printing said single coupon record with at least a portion of said biographic and demographic data being printed thereon without limiting a number of additional times that said single coupon record may be printed.

14. The method of claim 8, further comprising the steps of:

- (g) using said access code to limit a user's access to said coupon unrelated content to a discrete, customized collection of said coupon unrelated content.

15. The method of claim 14, wherein said coupon unrelated content further comprises a game, further comprising the steps of:

- (h) causing said control program to display a coupon to said user upon said user achieving a predesignated accomplishment in said game; and
- (i) causing said control program to prompt said user to print said coupon.

16. The method of claim 14, wherein said coupon customization criteria further comprises biographic and demographic information relating to said user, and said step of limiting a user's access to a discrete, customized collection of said coupon unrelated content further comprises displaying coupon unrelated information to said user that is predesignated as being associated with said biographic and demographic information.

17. The method of claim 16, said coupon unrelated information further comprising a trivia game, and said step of displaying coupon unrelated information further comprises displaying trivia questions that are predesignated as being associated with said biographic and demographic information.

18. In combination, a printed alpha-numeric access code and a computer-readable storage medium containing computer executable code for instructing a computer to operate in a particular manner when used by a computer, said computer-readable storage medium comprising:

- a first collection of data objects comprising a non-customized collection of electronic coupons;
- a second collection of data objects comprising access codes, each said access code corresponding to at least one of said electronic coupons; a third collection of data objects comprising coupon unrelated content; and a control program operable to instruct a computer to operate as follows:
  - (i) directing the computer to prompt a user to input said printed access code;
  - (ii) directing the computer to receive as input from said user said access code;
  - (iii) directing the computer to compare said access code input from said user with said second collection of data objects; and
  - (iv) directing the computer to limit a user's access to said first collection of data objects to a discrete, customized collection of electronic coupons corresponding to said access code input by said user.

19. The combination of claim 18, said control program further being operable to instruct a computer to operate as follows:

- (v) directing the computer to display a listing of all electronic coupons stored on the computer-readable storage medium;
- (vi) directing the computer to receive as input a user selection of a single one of said electronic coupons;
- (vii) directing the computer to display a single one of said electronic coupons in response to a user selection;
- (viii) directing the computer to receive as input a user instruction to print said displayed electronic coupon; and

(viii) in response to a user instruction to print a user-selected electronic coupon, directing the computer to print said user selected electronic coupon if said coupon is included in said discrete, customized collection of electronic coupons corresponding to said access code input by said user.

20. The combination of claim 19, said control program further being operable to instruct a computer to operate as follows:

- (ix) in response to a user instruction to print a user-selected electronic coupon, directing the computer to establish communication with a remote host electronic coupon ordering system;
- (x) directing the computer to transmit to said remote host electronic coupon ordering system coupon customization criteria;
- (xi) directing the computer to receive as input from said host electronic coupon ordering system an alternate alpha-numeric access code and to write said alternate alpha-numeric access code to a memory storage device on the user's computer;
- (xii) directing the computer to compare said alternate access code with said second collection of data objects; and
- (xiii) directing the computer to modify said user's access to said first collection of data objects to include an additional, discrete, customized collection of electronic coupons corresponding to said alternate access code.

21. The combination of claim 20, said control program further being operable to instruct the computer to receive as input from said host electronic coupon ordering system said alternate access code without displaying said alternate access code to said user.

22. The combination of claim 19, said control program further being operable to instruct a computer to operate as follows:

- (ix) directing the computer to prompt a user to input biographic and demographic information;
- (x) directing the computer to receive as input from said user said biographic and demographic information; and
- (xi) in response to said user instruction to print a user-selected electronic coupon, further directing the computer to print said user selected electronic coupon if said coupon is included in said discrete, customized collection of electronic coupons with at least a portion of said biographic and demographic information printed thereon.

23. The combination of claim 19, said control program further being operable to instruct a computer to operate as follows:

- (ix) directing the computer to prompt a user to input biographic and demographic information;
- (x) directing the computer to receive as input from said user said biographic and demographic information;
- (xi) directing the computer to receive as input a user instruction to establish communication with a remote web site corresponding to a provider of said user-selected electronic coupon;



(xii) in response to a user instruction to establish communication with said remote web site, directing the computer to establish communication with said remote web site; and

(xiii) directing the computer to transfer at least a portion of said biographic and demographic information to said remote web site.

24. The combination of claim 18, wherein each said access code further corresponds to at least one item of said coupon unrelated content, said control program further being operable to instruct a computer to operate as follows:

(v) directing the computer to limit a user's access to said third collection of data objects to a discrete, customized collection of coupon unrelated content corresponding to said access code input by said user.

25. The combination of claim 24, said coupon unrelated content further comprising a game, and said control program further being operable to instruct a computer to operate as follows:

(vi) directing the computer to display a coupon to said user upon said user achieving a predesignated accomplishment in said game; and

(vii) directing the computer to prompt said user to print said coupon after it is displayed.

26. The combination of claim 24, said coupon unrelated information further comprising a trivia game, and said instruction of directing the computer to limit a user's access to said third collection of data further comprises instructing the computer to display questions that are predesignated as being associated with said access code.

27. A system for distributing electronic coupons, comprising:

a server computer hosting an electronic coupon ordering service accessible via client computers to a plurality of potential users, said server computer providing a user interface comprising input controls including means for enabling a user to select coupon customization criteria, and means for enabling a user to enter identifying and financial information,

means for generating an alpha-numeric access code using said coupon customization criteria;

means for printing said alpha-numeric access code; and

means for transmitting in combination said alpha-numeric access code and a computer-readable storage medium

to said user, said computer readable storage medium containing a control program, a non-customized collection of electronic coupons, and coupon unrelated content, said control program being operable in response to input of said access code to limit a user's access to said non-customized collection of electronic coupons to a discrete, customized collection of said non-customized electronic coupons.

28. The system of claim 27, further comprising:

alternate access code ordering means for receiving a request from said user to obtain an alternate access code, enabling said user to select alternate coupon customization criteria, generating an alternate access code using said alternate coupon customization criteria, and automatically transmitting to a computer used by said user said alternate access code.

29. The system of claim 28, said alternate access code ordering means further comprising means for automatically transmitting said alternate access code to said computer without displaying said alternate access code to said user.

30. The system of claim 27, said means for enabling a user to select coupon customization criteria further comprising means for instructing a user to indicate a specific geographic region in which said customized collection of coupons may be redeemed, wherein said customized collection of said non-customized electronic coupons comprises a collection of coupons redeemable within said specific geographic region.

31. The system of claim 27, said means for enabling a user to select coupon customization criteria further comprising means for instructing a user to indicate a specific biographic and demographic data, wherein said customized collection of said non-customized electronic coupons comprises a collection of coupons which are predesignated to correspond to said biographic and demographic data.

32. The system of claim 27, said means for enabling a user to select coupon customization criteria further comprising means for instructing a user to indicate a specific theme of coupon offers, wherein said customized collection of said non-customized electronic coupons comprises a collection of coupons which are predesignated to correspond to said theme.

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DERWENT-ACC-NO: 2002-634003

DERWENT-WEEK: 200268

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TITLE: System and method for training  
entertainer by instantly  
producing work in cd or dvd,  
assessing work over wire or  
wireless internet

INVENTOR: LEE, J H

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PRIORITY-DATA: 2000KR-0059388 (October 9, 2000)

PATENT-FAMILY:

PUB-NO	PAGES	PUB-DATE	MAIN-IPC
KR 2002028411 A		April 17, 2002	N/A
001	G06F 017/60		

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
KR2002028411A	N/A	
2000KR-0059388	October 9, 2000	

INT-CL (IPC): G06F017/60

ABSTRACTED-PUB-NO: KR2002028411A

BASIC-ABSTRACT:

NOVELTY - An entertainer training system and method is provided to receive works from participants of a star entertainer training project, to instantly store the works at a CD or a DVD, to enable the participants to get the CD or DVD at a franchise store, and to get bonus money or prize according to an assessment result.

DETAILED DESCRIPTION - The method comprises steps of a participant making a payment for a participation with a credit card, cash or a remittance(101), the participant accessing a server of a star entertainer training service site(102), the server offering a menu screen of star entertainer training projects in the fields of an acting, a music, a writing, an internet CF, a game or a fashion(103), the participant selecting a project on the menu screen, repeatedly participating in the selected project and then the server storing the best score among scores resulted from the repeated participation(104), the server storing the images and the sounds of preference by the participant at a CD or a DVD at a franchise store(105), and the server offering a prize money, a gift or a bonus point according to a rank resulted from the project participation after completing the project(106).

CHOSEN-DRAWING: Dwg.1/10

TITLE-TERMS: SYSTEM METHOD TRAINING INSTANT PRODUCE WORK CD  
ASSESS WORK WIRE  
WIRELESS

DERWENT-CLASS: T01

EPI-CODES: T01-J05A;

참가자가 프랜차이즈 서버 시스템  
이용료를 결제하는 단계 (101)

참가자가 스타 양성 서버  
시스템에 접속하는 단계 (102)

서버시스템이 참가자에게 스타 양성  
프로젝트의 선택 화면을 제공하는 단계(103)

참가자가 프로젝트를 선택하여  
수행하는 단계 (104)

프로젝트 수행하는 영상과 음성이  
CD,DVD로 저장 및 도출되는 단계 (105)

참가자의 등수에 따른 상금, 상품, 적립점수를  
참가자에게 지급하는 단계 (106)